

**PLANNING
IN DEVELOPING
COUNTRIES
THEORY
AND METHODOLOGY**

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DEVELOPING
COUNTRIES
THEORY
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**ТЕОРИЯ И МЕТОДОЛОГИЯ ПЛАНИРОВАНИЯ
В РАЗВИВАЮЩИХСЯ СТРАНАХ**

На английском языке

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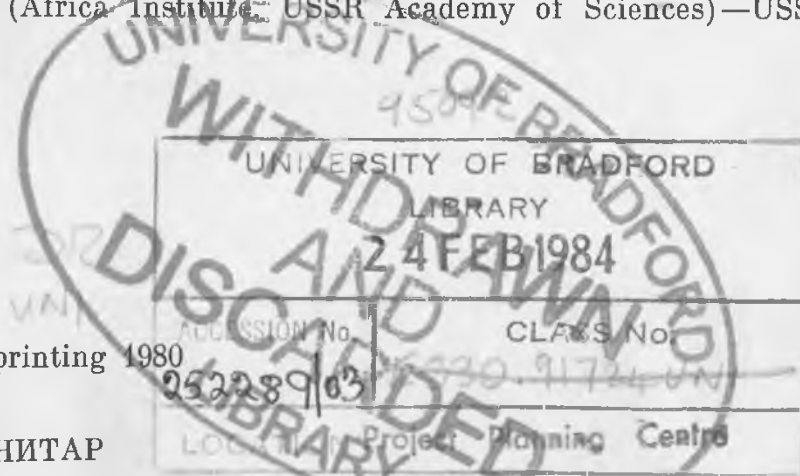
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First printing 1980

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English translation © Progress Publishers 1979

Printed in the Union of Soviet Socialist Republics



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PREFACE

This study on the theory and methodology of planning in developing countries has been prepared for the Department of Research of UNITAR by the African Institute of the USSR Academy of Sciences.

In recent years the issue of development has become one of the foremost preoccupations of the United Nations system. Concern with this issue is reflected in the large number of global conferences, special sessions of the General Assembly, resolutions, declarations and studies devoted to questions of development.

Considerable attention has been given to how developing countries can best utilise and allocate scarce resources so as to ensure development and social justice. Economic planning is one instrument that can be used to ensure that resources are utilised in an effective and productive manner.

There are no universally accepted formulas that a developing country can follow in planning its development. A variety of approaches can be, and indeed are, followed. One approach to planning is described and analysed comprehensively in this study, which discusses the theoretical foundations and methodology of planning. All stages of the planning process are considered. Of particular interest is the analysis of economico-mathematical methods in the preparation of plans.

The study will be of great interest and benefit to planning officials in developing countries as well as international of-

ficials and other experts who are concerned with problems of development planning. A useful glossary has been provided for those who may not be familiar with some of the terminology employed in the study.

Although conducted under the auspices of the Africa Institute of the USSR Academy of Sciences, the study was actually prepared by an international team of scholars from the Peoples' Republic of Bulgaria, the German Democratic Republic and the USSR. The editorial committee consisted of Dr. G. V. Smirnov (Chairman) and Dr. S. A. Bessonov (Africa Institute, USSR Academy of Sciences) and Professor H. Linzel (Institute for the Study of Economics of Developing Countries, Higher School for Economic Sciences, German Democratic Republic).

In accordance with UNITAR practice, an earlier draft of this study was reviewed by a panel of diplomats, international officials and scholars. This final version has benefited from the panelists' observations and suggestions and written comments submitted by others.

The views and conclusions put forward in this study are the responsibility of the authors alone and do not necessarily reflect the opinions of the Board of Trustees or officials of UNITAR. While UNITAR takes no position on the views expressed by the authors of its studies, it does assume responsibility for determining whether a study merits publication and dissemination.

UNITAR and the Africa Institute are most pleased to publish this study.

Anatoly Gromyko
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Africa Institute of the
USSR Academy of Sciences

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INTRODUCTION

The major tasks confronting developing countries include the achievement of economic independence, the overcoming of backwardness and the implementation of socio-economic transformations. Today, they cannot be attained through a reliance on spontaneous, unregulated processes of social development. Both internal factors and the external conditions in which newly independent countries find themselves create an objective need for a conscious influencing of the processes of social development. Because the state represents a major instrument for exerting such an influence, it is playing an increasing role with regard to all aspects of socio-economic development irrespective of its particular socio-economic orientation and of the specific features of these countries' political, social and economic structures and of the level of development of their productive forces.

As the national states of developing countries become increasingly active in influencing socio-economic processes they seek to govern them in the interests of those particular social groups and strata of the population whose interests they represent. States become not merely organisers of the process of reproduction, but also direct participants.

This is expressed in the creation and growing role of the state sector within the economies of developing countries and in the transformation of the state into a "collective" entrepreneur, in the intensification of its social functions, its active influencing of the development of production relations, its utilisation of various forms and methods

of direct and indirect regulation of economic life, and finally its striving to lend a goal-oriented, planned character to socio-economic development.

In most developing countries there is a trend towards a concentration of economic as well as political functions within the state administration. These follow from responsibilities for economic and social development and from a striving to organise the development of the process of social reproduction or else of individual elements of that process in a planned manner.

* The first attempts in developing countries to rely on various forms of planning in the economic sphere were made shortly after the end of the Second World War. Soon various forms of economic planning were adopted in most developing countries of Asia, Africa, and Latin America. Yet their practical experience demonstrated that the regulation of economic processes is far from being a simple task, and that in many cases developing countries did not succeed in surmounting the obstacles that stood in the way of overcoming backwardness and of achieving social progress and rapid economic growth. While in many developing countries the first national plans were viewed as some universal means that would somehow automatically achieve the objectives that were assigned to them, in subsequent years and especially during the second half of the 1960s, failures and difficulties in implementing plans led to a search for new forms and methods of planning and for improving plans. In certain countries this also resulted in doubts concerning the very possibility of planning economic development.

The number of studies and works written both by theoreticians and practical planners in developing countries increased very rapidly. Problems of planning came to be widely discussed and continue to be discussed at conferences, symposia and seminars held both at the level of individual nations and at the international level. Economists and planners belonging to different schools and approaches participated in these studies and discussions, and many useful recommendations were made that sought to improve the methods of planning employed in developing countries. Particular emphasis was given to the construction of a wide range of economico-mathematical models intended to help prepare plans of economic development.

Most studies concerned with problems of economic planning in developing countries possessed a number of common traits.

They view planning as a subjective process, in which the government controls the development of economies by influencing rates of growth and the composition and properties of social reproduction. More specifically the essence, contents, and degree of influence on economic development were separated from the actual properties of the object of planning, namely, the country's socio-economic system, and were interpreted only as a function of factors characterising the subject of planning, namely, the government and its planning bodies. This led to the conclusion that all efforts must be directed simply at improving the system of planning bodies, and the methods and procedures and techniques employed in preparing plans.

× Two types of recommendation follow from such a conception of planning. The first reduces to proposals to prepare more accurate mathematical models of future economic development, that is, of models on which planned targets must be based. The second asserts that a "good" plan is one that expresses the economic policy of the state in the form of planned tasks and objectives.

Despite important differences relating to the proposed contents of planning, all such recommendations concerning improvements in planning possess a common feature, namely, a subjective approach to its content that ignores the properties that characterise the object of planning together with a striving to overcome difficulties merely by changing methods of planning irrespective of socio-economic conditions.

It is true, of course, that methods employed in developing plans, including technical procedures relating to specific problems of planning for determining planned indicators, for selecting technico-economic solutions, and for organising planning activities, are extremely important. It follows that studies and analyses concerned with the planning methodology, that is, with specific technical procedures and methodologies for preparing plans, for determining individual planned indicators, establishing their mutual interconnections and ensuring the internal consistency of plans clearly help improve the practice of planning.

G. J. ...

The role of such methods, however, is less important than are theories and methodologies of planning concerned with properties of the objects of planning.

Before selecting particular methods or specific technical planning procedures it is important to clearly establish the substance of the type of activity that is envisaged together with its possibilities and limitations in influencing the overall process of reproduction as well as individual aspects of that process. These are questions that must be answered by a theory of planning.

As one of the elements that govern the process of socio-economic development planning cannot be carried out blindly without a clear understanding and utilisation of objective laws of social development.

The methodology of planning encompasses the set of basic principles that govern the internal logic of the entire planning process as well as the elaboration and implementation of plans.

Planning methodology must reflect the properties of the object of planning, and consider the objective laws that govern the process of reproduction as they operate in specific historical and socio-economic conditions. The subject of planning is the state serving the interests of particular classes and social strata of the population through a particular economic policy that finds its concrete embodiment in economic plans. In many ways the methodology of planning also determines its methods.

The present study is devoted to issues in the theory and methodology of planning in developing countries. Planning methods are considered only to the extent that this is needed in order to examine the theoretical foundations and methodological principles of planning under conditions characteristic of developing countries. In most cases they are considered without describing technical methods of planning in detail. The primary aim of this study is to identify the objective basis of planning, to analyse its internal logic, and to show the objectively operating principles that, in view of the authors, should guide planning activities in developing countries. Subsequently, specific technical methods of planning will be considered that best correspond to its internal logic and to its general principles.

These objectives have largely determined the general basis of this study. It is based on: (a) the laws of social

development that have been identified and formulated by Marxist political economy; (b) an analysis of specific characteristics and traits of the process of reproduction in economies within developing countries possessing multiple formations (as the object of planning) and of the role of the state as the subject of planning; and (c) a consideration of the requirements that follow from the objective conditions of socio-economic development in newly independent countries.

The structure of the present study consists of five parts. These follow from the position of the internal logic and the general principles and methods of planning socio-economic development as an element of the general system that regulates the process of reproduction—both of the material conditions of social life and of the system of social relations (relations within the process of production).

In the first section, entitled "Theoretical Foundations of Planning", the place of planning activities within the overall system of economic regulation is established on the basis of Marxist political economy and of the specific features and contents that attach to conditions of economic planning characteristic of developing countries. In particular, planning is viewed as one of the forms for establishing proportions in the process of reproduction.

In such a context an analysis of the basic features of socio-economic development in developing countries provides an initial basis for identifying those elements that establish the need and possibility of planning in multiple-formation economies, and also the nature of planning activities and the extent to which it is able to influence the course and substance of economic development.

The second section, entitled "The Methodology of Planning in Developing Countries", is concerned with identifying the principal methodological requirements of planning that follow from the objectively inherent in the process of reproduction dialectical unity of all its stages, forms and elements, and their indissoluble interconnection and interdependence. In that section those elements of the general logic and methodological principles of planning are analysed that follow from the specific properties of the process of reproduction in developing countries. Problems relating to the scientific basis of plans and to the economic justification of planned decisions are also considered, as are

the methodological requirements bearing on the organisation of planning at each of its stages, from the preparation of plans to control over their implementation.

The third section is entitled "Planning Individual Elements and Stages of the Reproduction Process". It is concerned with methodological issues bearing on the preparation and implementation of individual sections of overall national plans. These are viewed in terms of their application to the corresponding stages and aspects of the reproduction process. That section is also concerned with approaches to the calculation of overall economic planned indicators, the planning of the development of the production sphere (agriculture, industry, economic infrastructures), methodological issues in planning the sphere of circulation (government finances, monetary circulation and commodity circulation), and with the planning of consumption and accumulation.

The fourth section is entitled "Territorial Planning". It contains a brief analysis of methodology for planning reproduction in its spatial aspects. It considers general problems and specific approaches to regional planning, the location of productive forces, and the development of lagging regions within developing countries.

The fifth section, entitled "The Use of Económico-Mathematical Methods in the Preparation of Plans", occupies a special place. The methodological issues attaching to the use of económico-mathematical models in preparing plans and in providing for their internal consistency are one of the most complex issues of planning and deserve particular attention.

While recognising the existence of specific features within individual socio-economic structures, information systems and the tasks of planning, this section analyses possibilities for applying particular mathematical methods in preparation of plans and in ensuring their internal consistency (económico-mathematical models, balance relations expressed in value terms, and systems of balances in physical terms). The sphere and scope of the most expedient use of such methods in developing countries are also noted.

Although the developing countries of Asia, Africa, and Latin America possess a number of common features, they also differ considerably in terms of their approach to socio-economic development, the size of their territories, and the

size of their populations, as well as in the level of development of their productive forces and the sectoral and social structure of their economies. In many newly independent countries the state already occupies a leading position within the economy, while others rely on private capital, (either national or foreign), while in the least developed countries pre-capitalist formations prevail that are based on semi-natural and on small-scale commodity production.

These factors influence the relevant methodological aspects of planning as well as the substance and nature of planning in different developing countries.

Since it is impossible to reflect the full diversity of these conditions within a single study, the authors have sought to consider those conditions and trends that are most characteristic of many newly independent countries.

A terminological problem arose in preparing this study. The terminology and concepts utilised in economics, statistics and the planning practice of developing countries do not always lend themselves to sufficiently precise descriptions of the regularities that govern the process of social reproduction. The particular set of economic categories and of interrelations among them that bear on the internal logic and basic principles of planning is best reflected in the terminology and concepts of Marxist political economy. There are cases in which the same terms may have different contents. To facilitate the reader's understanding of this study a short glossary is provided at the end. This may serve as a guide to the concepts and terms that are employed in this study.

The main work in preparing the individual sections of the monograph "Theory and Methodology of Planning in the Developing Countries" was done by:

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The reference dictionary was prepared by S. Balashov and P. Sedov Cand. Sc. (Econ.)

1. THEORETICAL FOUNDATIONS OF PLANNING

1.1 THE CONCEPTION OF NATIONAL ECONOMIC PLANNING. THE SUBSTANCE OF PLANNING

It was not long ago that economic planning was viewed as a specific attribute of socialist economies. In capitalist countries, on the other hand, during the world economic crisis of 1929-1933, state programmes of anti-crisis measures were widely used and were connected with the strengthening of state-monopoly trends.

In post-war years, however, attempts to introduce elements of planning into the development of capitalist economies became widespread. They were explained, moreover, neither by periods of economic crises nor economic mobilisation for military purposes. Many developed capitalist countries prepared medium-term as well as long-term plans and programmes of national economic development, or else similar plans for individual economic processes. Various forms of planned regulation of economic activities also came to be widely employed in developing countries.

It is as a result of these developments that the term "economic planning" has found a place in the economic literature and has come to be widely employed by economists of all schools and scientific views.

The substance of economic planning and the extent to which it influences the economies of different groups of countries vary considerably. But in all cases the prevailing conditions of economic life and especially the socio-economic conditions within which planning is applied and also the nature of political power operate as decisive factors.

The term "economic planning" is often given very

different meaning by representatives of different theoretical schools and approaches and also practical workers. Occasionally the word planning is used to refer to any government activity intended to regulate the economy or economic life. In addition, such terms as economic programming and planification are also employed.

This leads us to consider two questions, namely, 1) what is economic planning? 2) what role does it play in activities concerned with the regulation of economies?

Let us first emphasise that the present study is concerned with economic planning at the national level, that is, concerning overall economic planning, rather than planning of the economic activities of individual enterprises, firms, or other associations of production or commercial establishments.

Already in the 1960s the United Nations Economic and Social Council observed in one of its reports:

"In the course of the last few years there has been a remarkable intensification of interest in national economic planning. Recent resolutions of the General Assembly and the Economic and Social Council, calling for international action to strengthen planning activity, attest to the almost universal character of this heightened interest. What is striking about this trend is not simply that the number of countries engaged in national planning has increased considerably; more important, planning has emerged as a tool of policy in countries differing widely, not only in their stages of economic development, but also in their economic and social systems." *

In noting these tendencies in application of planning the authors of that report define economic planning as follows: "In essence, a plan is a body of economic and social policies expressed in quantified targets and defined tasks." **

Equally typical is the definition of planning provided in one of A. Waterston's studies: "It represents the rational application of human knowledge to the process of reaching decisions which are to serve as the basis of human action... The central core of the meaning remains the

* *Planning for Economic Development. Report of the Secretary-General Transmitting the Study of a Group of Experts*, United Nations, New York, 1963, p. 1.

** *Ibid.*, p. 5.

establishment of relationships between means and ends with the object of achieving the latter by the most efficient use of the former."*

The common element in these and many similar definitions of economic planning is that they do not refer to the socio-economic substance of planning and to its intimate relation with the socio-economic foundations of the process of reproduction and with the specific political conditions within which it is carried out. In this respect the definition of planning contained in a report of a Seminar on the Role of Public Enterprises in Planning and Plan Implementation held by the Economic Commission for Africa (ECA) in September 1969 is very typical: "Planning is a dynamic process, a method of analysis and thinking, and may or may not involve the preparation of a comprehensive legally binding blueprint for social and economic development."**

It would be completely incorrect, however, to use in planning merely a "method of analysis and thinking", or else a "rational application of human knowledge to the process of reaching decisions".

Objective laws governing development lend to the process of material production and consumption specific proportions and interdependences. These include, in particular, proportions between the production of means of production and means of consumption, between consumption and accumulation, and between the production of means of consumption and incomes of the population. Deviations from normal proportions inevitably lead to a disruption of the course of reproduction, reduce the rate of economic growth, produce crisis situations, and lead to an intensification of social conflicts.

Two basic methods exist for establishing proportions and relations among individual spheres, sectors, and component parts of the economy, namely the spontaneous form for establishing proportionality, which has developed most fully under capitalism, free competition, and the prevalence of private capitalist ownership, and the planned form for

* Albert Waterston, *Development Planning, Lessons of Experience*, the Johns Hopkins Press, Baltimore, Maryland, 1965, p. 8.

** United Nations Economic and Social Council, Distr. General E/CN, 14/463, 3 December 1969, p. 5.

establishing proportionality, which becomes decisive following the liquidation of private property and the socialisation of the basic means of production, i.e. under conditions existing under socialism.

Following the transition from such spontaneous forms for establishing proportions to planned forms, there arises both a need and possibility for introducing principles of planning into the development of national economies, i.e. for regulating the process of reproduction through a conscious determination of proportions in distributing labour and financial and material resources among individual spheres and sectors of the national economy. Planning then encompasses, moreover, not merely the production sphere of the economy, but also the non-productive sphere together with all major areas and elements of the material basis of the given society's social and cultural life.

As conscious activity concerned with guiding a society's economic, social and cultural life, national economic planning rests on a definite objective foundation. While it influences the economic life of society, it must base itself on a knowledge and conscious utilisation of objective laws. Since it reflects the economic policies of the state, planning always embodies a specific social direction, and is carried out in the interests of those classes and those social forces who have state power.

This makes it possible to arrive at the substance of the conception of "national economic planning" (the planning of national economies).

National economic planning is the conscious activity of individuals in governing the economic, social and cultural life of a society through utilisation of objective economic laws that are characteristic of the particular type of reproduction. Possibilities for planning the process of reproduction, i.e. for a conscious establishment of proportions in distributing a society's labour, financial and material resources among individual spheres and sectors of the national economy in the interests of solving specific economic and social problems, appear under particular socio-economic conditions. They appear in the presence of a measure of socialisation of production under which spontaneous forms for establishing proportionality in national economies yield to plan-oriented forms, and when market relations and competition cease to operate as the foundation and decisive

factors in the further development of production, distribution and consumption.

The subject of national economic planning is the state, as represented by its political, planning and economic agencies. These operate on behalf of and in the interests of those classes and social groups of the population that have state power. Accordingly, both planning and economic policy always embody a class content and a social and political direction. It influences not only the reproduction of the material conditions of social life, but also the reproduction of property relations, exchange and distribution.

Depending on the existence of corresponding real prerequisites, the object of planning may be either the entire national economy, or else the basic national economic proportions that determine the general course of the reproduction of material conditions of a society's existence and of social relations.

In the case of socialist economies national economic planning encompasses the following elements:

First, both sides of the social structure, namely, the production of material goods and services that are made available to society, and the social conditions of human existence;

Second, all stages of reproduction, namely, production, the realisation of products (distribution and exchange), and consumption;

Third, both forms of reproduction process, namely, its value form and its physical form (physical planning);

Fourth, all levels and sectoral and territorial aspects of reproduction, namely, the macro-economic level, the sectoral level, the regional aspect for the entire national economy, and the level of production or commercial enterprises and of other economic units.

It is important to draw attention to the temporal aspect of planning. It may refer to short-term planning (yearly, quarterly, monthly plans), medium-term planning (usually three- to five-year plans) and long-term planning (over periods of 10-15-20 years).

The process of planning itself includes the following stages: the preparation of plans, their implementation, and control over implementation and reporting.

What is, then the role of economic planning in governing and regulating a society's economic life, and what is the relation of planning to other forms of this activity?

Possibilities for regulating the production of material goods representing a social process are constrained by a framework embodying the objective economic laws that are characteristic of the given mode of production.

An important role in the governing and regulation of the economy is played by the political superstructure. The extent to which the state influences the process of reproduction, moreover, is determined by the position of state power within the economy, and by its possibilities for utilising means of economic and non-economic compulsion. It depends, in short, on combinations of two basic factors, namely, social relations and concrete forms of political organisation.

In ancient slave-owning states, in which natural economy prevailed, highly centralised forms of state power exerted a marked influence on the process of reproduction.

The influence of state power on the economy was much less in medieval times.

As commodity-oriented economies developed, and especially after the capitalist mode of production became dominant, the isolation of individual commodity producers from each other was overcome as national economic complexes began to develop, together with a world-wide capitalist economy. Increasingly, production acquired a social character (while appropriation of the results of production was private in form) and this served as a prerequisite for extending the possibilities for governing national economies. Under capitalism, however, the process of social reproduction is spontaneous. Under conditions in which there exists an irreconcilable contradiction between social forms of production and private forms of appropriation the proportion in which labour and capital are allocated among individual sectors and spheres of the economy in which products of labour are exchanged, and in which material goods are distributed and consumed is established through the operation of the so-called market mechanism, i.e. under the influence of the laws of capitalist competition, the pursuit of profit, and of relations of exploitation and oppression. Man's activities in governing the reproduction process are limited by the scope of private capitalist ownership and the operation of the spontaneous regulating mechanisms of capitalist economies. Under conditions of free competition, the bourgeois state does initiate some measures in

regulating economies, but its main objective is to protect the interests of national capital from foreign competition, and it does not exert any appreciable influence on the process of capitalist reproduction as a whole.

Following a transition from the capitalism of free competition to monopolistic capitalism, objective possibilities for governing the economy become much wider. While the appearance of large associations that monopolise a major part of output and distribution of many types of products and the existence of powerful groups of financial capital do not obviate the operation of spontaneous, market regulators, they do create new possibilities for regulating the economy "from below", that is at the level of individual capitalist enterprises, associations and trusts. Possibilities arise for arriving at agreements among individual monopolies within the context of competition. These may be agreements for dividing markets, establishing quotas and for regulating activities at the level of individual sectors or groups of sectors, including agreement to plan production, marketing and prices.

The intensification of state-monopoly trends creates even greater possibilities for regulating economies at both the national and the international level. The power of monopolies is then joined to that of the state as state-monopolistic enterprises develop and the state comes forth as an entrepreneur, accumulating and redistributing a significant and occasionally the greater part of monetary accumulation through the state financial system and a large state market for goods and services appears. The state influences the development of both the productive and non-productive spheres of national economies. As integration processes develop it also interferes with capitalist reproduction within both individual closed groupings and the world capitalist economic system.

It is as a result of such processes that the regulation of economic life by the state has become widespread at the present stage of the development of capitalism and has encompassed many aspects of economic life (the programming of the course of capitalist reproduction) and that medium- and long-term "plans" and programmes of development of the national economy have begun to be prepared in developed capitalist countries. At the same time bourgeois economic science itself has practically rejected

doctrines advocating "free market economies" and has introduced the terms of "economic planning" and "programmes" into its scientific vocabulary.

Yet, even under highly developed forms of state-monopoly capitalism the dominance of private capitalist ownership of means of production and the continued existence of private forms of appropriating the outcome of labour activities limit possibilities for planning. Planning cannot become comprehensive. Spontaneous regulating mechanisms governing the reproduction process continue to operate and the contradictions of the capitalist mode of production systematically generate crisis phenomena. Because it is impossible to arrive at comprehensive forms of planning in the development of capitalist reproduction, capitalist states are forced to rely on a wide range of measures that seek to regulate economic life indirectly and to weaken the operation of spontaneous influences. It is only when capitalist production relations are broken, when the private ownership of means of production is abolished and socialised that the spontaneous operation of the "market mechanism" ceases to act as a regulator of production, exchange and distribution, and consumption activities. An objective need then arises for regulating all aspects of the process of social reproduction through planning.

But such an objective possibility and need for achieving a higher form of planning in the development of social production is realised only through a transfer of the basic means of production and institutions of the sphere of circulation to social ownership, while simultaneously retaining commodity-money relations, i.e. under conditions of socialism. Planning then becomes the principal means for governing the process of reproduction. But under conditions of socialism as well, planning is not the only means for achieving a conscious regulation of the economy. First, since commodity-money relations continue to exist, as well as different forms of socialist ownership, planning is always combined with elements of indirect economic regulation by the state in relation to certain aspects of the process of reproduction that do not fully lend themselves to planning. Second, planning cannot replace those everyday activities relating to the management and regulation of production and the distribution and utilisation of the social product

that are carried out at all levels, even though such activities are guided by common tasks and objectives defined by the plan.

National economic planning represents a higher form of governing and regulating a society's economic life. As a method of economic regulation it develops dialectically from other forms for achieving the proportionality of social reproduction, by negating, rejecting, or else utilising and subordinating these forms to itself. This occurs as the given society's productive forces develop, as the social character of production grows, and as dominant production relations change, namely, relations of ownership over means of production, of exchange and of distribution of the social product and income.

Under socialism, national economic planning represents a higher form of regulation over the process of social reproduction resting on a conscious utilisation of the objective economic laws that characterise that particular mode of production. It accepts the positive experience of man's preceding activities in the field of economic management and is continually perfected through the achievements of economic science.

1.2. THE BASIC CONCEPTIONS OF NON-MARXIST VIEWS OF SOCIO-ECONOMIC PLANNING IN DEVELOPING COUNTRIES

The current planning practices of socio-economic development of former colonies and dependent countries are largely based on conceptions that reflect bourgeois or else petty-bourgeois views concerning the solution of those newly free countries' socio-economic problems. These conceptions are neither logically complete nor organically integrated. In many ways they represent combinations of different views and postulates that are frequently contradictory and cannot be reduced to some common denominator. It is true that most of them are indeed concerned with demonstrating the desirability and need for planning the economic development of newly independent countries in Asia, Africa, and Latin America. Yet, in our opinion, their common shortcoming is that they do not even begin to consider comprehensively the concrete socio-economic conditions that exist in these countries. As a result, objective possibilities for a wide and effective introduction of planning

principles in their economic development are formulated with insufficient precision. This leads to an exclusive emphasis on formal planning procedures and calculations or else to interpretations of planning as only a means of improving the activities of spontaneous market mechanisms intended to serve the interests of free enterprises.

It should be recognised that in a number of cases the authors of such views have based them on studies of actual economic processes taking place in developing countries and have proposed recommendations concerning methods of planning that do make it possible to achieve practical results and to increase the effectiveness of planning.

A rather wide group of conceptions of economic planning in developing countries is based on the theory and practice of economic programming, which was first widely applied in developed capitalist countries. In its early stages, in fact, (in the 1950s) the practice of state planning in developing countries essentially represented attempts to apply the basic principles of Western programming to the conditions that developed in former colonies and dependent countries. It is only later that these postulates began to be modified and to recognise the specific conditions that exist in newly independent countries, although that process, evidently, is not as yet complete.

The development of theoretical conceptions of economic planning in developing countries may be viewed as an autonomous branch of bourgeois economic thought. Together with economic programming they rest on a number of other more general economic bourgeois theories, including neo-Keynesianism, institutionalism, the theory of "planned capitalism", of "mixed economies" and of the "Welfare State".

As developing countries acquired their own experience in this field, and as native personnel and specialists in the field of planning appeared, they began to formulate their own conceptions of planning that often represent attempts to mechanically combine the theoretical postulates of bourgeois planning with certain aspects of Marxist economic theory relating to the role of the state in socio-economic development and to the substance and function of state planning. Such approaches are characteristic of petty-bourgeois ideology. And even though such views in the area of planning have not led to the creation of some

comprehensive theory, they are relatively popular in many developing countries, and sometimes influence their planning practices. The development of bourgeois theories of planning in newly independent countries has been influenced by many, at times contradictory, political and economic factors. As a result, that process, which has now been proceeding for slightly over a quarter of a century, is varied and complex.

At first many bourgeois specialists on developing countries were opposed to planning. At the end of the 1950s, for example, the American economist R. Nurkse, wrote that the issue whether economic development in developing countries may in fact be achieved through planning or through non-planned form is debatable.* Already in the mid-1950s, however, most Western specialists began to be engaged in a theoretical and practical elaboration of problems of planning in developing countries, even though many of them continue to oppose the very idea of planning even today.

The methodology of socio-economic planning in developing countries began to be elaborated almost simultaneously by specialists in the economic programming of developed capitalist economies on the one hand, and by researchers specifically concerned with the economic problems of developing countries, on the other. Naturally, the views and conclusions of these two groups of researchers generally differed. In this way there appeared two streams and two schools in bourgeois science concerning planning in developing countries almost from the very beginning, namely, "programmers" and "politicians". The first emphasised the development of various economico-mathematical models, while the second stressed the formulation of state economic policies. Jan Tinbergen, a Dutch scientist, is a leading representative of the "programmers", while Gunnar Myrdal, who is a Swedish professor, is a prominent representative of the "politicians".

Yet both schools have much in common in their interpretation of problems of planning. Above all they rely on imprecise and even contradictory interpretations of the term "planning" itself. On the one hand, there is a tendency to

* See Ragnar Nurkse, *Problems of Capital Formation in Underdeveloped Countries*, Basil Blackwell, Oxford, 1955, p. 16.

give it the widest possible definition. This essentially has the result of identifying with it any goal-oriented conscious activity including all state activities that regulate economic life. For example, Bela Balassa, who is a widely known bourgeois economist, has written: "The word 'planning' has been used to denote a wide range of activities [state activities—*Auth.*], from the central management of the economy in the Communist countries to government-sponsored forecasts by private groups in Sweden".*

Such an extended interpretation of the substance of planning neglects the socio-economic conditions that determine the objective possibilities for state activities to regulate and manage the process of social reproduction, including planning methods too.

Other authors take the view that different times and different socio-economic conditions merely lead to different forms and methods of planning, while the essence of planning itself remains constant. For example, the American author R. Keilan has written that each economy presupposes the presence of a plan and that each economy represents an aggregate of planned activities for achieving specific objectives. Planning represents the substance of any economic activity. The theory of economic planning is concerned not only with certain specific forms of human societies but with a definite important part of any economy. Many authors of later works, for example, N. Caiden and A. Wildavsky (who are authors of a study of planning in developing countries published in the United States) also believe that planning may be applied effectively under any social system.** M. Roemer, too, defends the view that planning is universal and that it may be applied under any type of political system. In his opinion, this merely requires an interest in effective planning on the part of political leaders and the existence of good professional planners.***

While R. Keilan asserts explicitly that the planning of national economic development is possible under any socio-

* Dr. Bela Balassa, "Planning in an Open Economy", *Inter-economics*, Hamburg, No. 3, March 1967, p. 75.

** Naomi Caiden, Aaron Wildavsky, *Planning and Budgeting in Poor Countries*, John Wiley & Sons, New York, London, Sydney, Toronto, 1974, p. 168.

*** See Michael Roemer, "Planning by 'Revealed Preference': An Improvement Upon the Traditional Method", *World Development*, Pergamon Press Ltd., Oxford, Vol. 4, No. 9, 1976, p. 782.

economic conditions, R. Ackoff simply avoids the issue concerning the interdependence of planning and social relations and offers a definition that is neutral from a social point of view: "Planning is the design of a desired future and of effective ways of bringing it about".*

Other definitions of the term "planning", too, neglect the context that limits planning in different socio-economic systems. Many bourgeois scientists seek to emphasise the possibility of a "universal" planning under all conditions, so long as the subject of planning, namely, the national state, exists. The constraints on planning that are then mentioned are of a purely technical and organisational and economic nature, such as the availability of planning personnel and statistical data.

In most cases the state is viewed as a national supraclass organ, whose primary responsibility is to provide those services to the population that the private sector either cannot provide or else does not wish to provide, and also to contribute to the realisation of principles of social justice.

G. Myrdal has written that "attempts to realize in any substantial measure the ideals of social and economic equality and welfare, which are declared policy goals in all the South Asian countries, would also necessitate large-scale state intervention."**

More generally, bourgeois economic science ascribes to the state and to its planning activities in former colonies and dependent countries the role of a "built-in regulator" and "stimulator" of private capitalist development.

W. Cochrane, for example, who is an American economist, believes that the participation of the state in planning should be limited to those spheres in which private enterprise does not yield the necessary effect. He identifies three such areas, namely, the creation of economic and social infrastructures, the introduction of new methods of production, and the reduction of large differences in the incomes of various strata of the population (assistance in access to food

* Russell L. Ackoff, *A Concept of Corporate Planning*, Wiley-Interscience, a Division of John Wiley & Sons, New York, London, Sydney, Toronto, 1970, p. 1.

** Gunnar Myrdal, *Asian Drama. An Inquiry Into the Poverty of Nations*, Vol. II, Pantheon, a Division of Random House, New York, 1968, p. 719.

products, etc.). * In evaluating the role of the state in the process of socio-economic development in the least developed newly independent countries R. Green recommends that state bodies concentrate their attention on the training of personnel, on applied agricultural research, and on assistance to small-scale private entrepreneurs in industry and in agriculture, as well as on questions of economic integration with other developing countries, and on increasing the competence of civil servants. ** In the opinion of P. Klümper (the Federal Republic of Germany), the state may operate as a motive force in economic development only in individual small interior countries possessing limited internal markets. In those developing countries, on the other hand, where a definite economic foundation has already been established, P. Klümper stresses the need to base the process of development on the private sector and on a comprehensive involvement of direct foreign investments. *** Another West German economist, A. Halbach, believes that the state must engage in entrepreneurial activities only when a sufficient volume of private investment does not exist. He emphasises that "such a policy of state investments for purposes of economic growth must in no case be basically directed against enterprise and a liberal economic structure". ****

According to the petty-bourgeois conception of planning, on the other hand, the state must play a decisive role in socio-economic development and directly control major sectors of the economy, including large-scale industry, banks, construction activities, the economic and social infrastructures, internal wholesale trade, and foreign trade.

Most bourgeois planners, and above all the "programmers", view state planning as a type of scientific, organisational and economic activity that is politically neutral.

* Willard W. Cochrane, *Agricultural Development Planning. Economic Concepts, Administrative Procedures and Political Process*, Praeger Publishers, New York, Washington, London, 1974.

** Reginald Herbold Green, "The Role of the State as an Agent of Economic and Social Development in the Least Developed Countries", *Journal of Development Planning*, United Nations, New York, No. 6, 1974, pp. 1-39.

*** Per Klümper, *Afrikanische Entwicklungspläne—Ziele und Verwirklichung*, Deutsches Institut für Afrika-Forschung, Hamburg, 1970.

**** Axel J. Halbach, *Industriestruktur und Industrialisierungspolitik in Uganda, 1963-1973*, Weltforum Verlag, München, 1974, S. 121.

In a study concerned with models of economic growth J. Tinbergen and H. Bos have written that "planning, or programming, of development is an activity which to a considerable extent is independent of the precise development policy pursued by a government".* P. Mordacq, who is a French economist, is even more emphatic in this regard: "Planning itself is a technique that is neutral in relation to the particular economic system within which it is applied." **

At the same time a number of recent studies written by bourgeois specialists in planning advocate more active contacts between political organs and planning bodies and their close co-operation, particularly in elaborating general strategies of development. N. Caiden and A. Wildavsky consider that "in whatever country they work, planners have to take into account the political circumstances, which must affect the model of comprehensive planning they are attempting to put into practice." *** They add: "If planning is to be more than an academic exercise, it must actually guide government decisions." **** M. Roemer, noting that under the traditional method of planning political decisions are taken separately before planning begins, suggests that emphasis in the work of planning bodies should be changed, thus ensuring that planners become far more active in preparing strategies of development over the planned period. According to the method that he proposes a major part of the work of planning bodies must consist in preparing a number of alternative strategies of development for political leaders from which the latter may choose their basic objective function. *****

On the other hand, some of the representatives of the "political" school interpret the planning of socio-economic development as simply one of the forms of government policies. G. Myrdal repeatedly emphasises that "a plan is essentially a political program. . . . A plan can have no exist-

* Jan Tinbergen, Hendricus C. Bos, *Mathematical Models of Economic Growth*, McCraw-Hill Book Company, Inc., New York, San Francisco, Toronto, London, 1962, p. 4.

** Patrick Mordacq, "De quelques aspects financiers de la planification française: le rôle du plan dans la définition et la mise en oeuvre d'une politique de croissance harmonisée, *Public Finance*, The Hague, No. 4, 1966, p. 475.

*** Naomi Caiden and Aaron Wildavsky, *op. cit.*, pp. 197-98.

**** *Ibid.*, p. 202.

***** Michael Roemer, *op. cit.*, pp. 775-83.

ence except as a political program.... It will have to be a political program, determined by actual power relationships, obstacles (presented by the attitudes and institutions of the people), and inhibitions (of the planners themselves).” *

It would appear that both these extreme points of view are incorrect. It is utopian to assume that the state, which is a body that is political by its very nature, does not assign to its planning activities a political content and limits itself to criteria of optimality, rationality, etc., which are deprived of social contents. On the other hand, the planning of socio-economic development cannot be “pure policy”. Above all it must be based on objective laws governing that development, that is appear as a synthesis of the economics and politics in which the latter plays a leading role. State planning represents an entire range of state activities including economic and social policies (in defining the planned strategy of development), as well as direct practical activities in preparing and implementing specific projects.

Two types of state planning are distinguished, namely, “partial” and “national”. The object of the first is considered to be some sector or branch of the economy (above all the state sector). It is considered that the most perfect form of planning corresponding most to the needs of developing countries is one that encompasses at least formally, the entire national economy. This point of view, however, has come to be dominant only since the middle of the 1960s, when project-oriented planning was subjected to criticism and the idea of comprehensive planning was advanced. In this connection A. Waterston has observed that in the mixed-economy countries, the basic credo “holds that comprehensive development planning, based on econometric techniques, is so superior to any other type that all countries, at all stages of development, would be well advised to use it in preference to any other”. ** Comprehensive forms of planning are advocated above all by representatives of the “programmers” school, which have produced an important number of partial and general macro-economic models of planning. Partial plans and programmes, he suggests, are advocated only in the most backward countries,

* Gunnar Myrdal, *Asian Drama...*, Vol. II, p. 731; Vol. III, pp. 1889, 1894.

** Albert Waterston, *op. cit.*, p. 5.

which do not possess trained planning personnel and sufficient statistical services.

In recent years the number of persons advocating that social problems be introduced into the sphere of planning has been growing among representatives of the bourgeois school of planning. G. Myrdal, for example, in his *Asian Drama*, seeks to show that social structure, rather than the economy alone, must be the object of planned development.

In tracing the evolution of the views of bourgeois scientists concerning the problems of development of newly independent countries and the corresponding laws, N. Caiden and A. Wildavsky observe that "the discovery of 'noneconomic factors' led to criticism of purely economic objectives".* They observe that aside from increasing rates of economic growth in Gross National Product, accumulation, incomes from export revenues, etc., the objectives of development have also come to include improvements in health services, the overcoming of illiteracy and of all types of discrimination as well as a wider and conscious participation of the people in political life. As a result, "the idea of system, the series of interrelationships upon which economists based their models, was extended to the whole society".** The Canadian economists A. G. Papandreou and U. Zohar recommend that in evaluating projects to be introduced into national plans, developing countries employ the so-called impact approach in which primary emphasis should be given to social objectives and priorities. In their opinion such a method for selecting projects makes it possible to provide for a genuine effectiveness in the process of development, i.e. to achieve clearly defined social objectives and a rational utilisation of financial resources. They introduce the concept of social profitability. This presupposes an evaluation of each concrete project not only from the point of view of individual forms but of society as a whole.***

At the same time many bourgeois scientists seek to substantiate the need for extending the sphere of planning beyond national boundaries, that is, to encourage planning

* Naomi Caiden and Aaron Wildavsky, op. cit., p. 11.

** Ibid., p. 12.

*** Andreas G. Papandreou, Uri Zohar, *National Planning and Socio-economic Priorities*, a two-volume series; Vol. 2, *The Impact Approach to Project Selection*, Praeger Publishers, New York, Washington, London, 1974.

within regions that encompass several adjoining states, particularly if they are combined into an economic grouping. Jan Tinbergen and his associates were engaged in a study of global planning for developing international economic relations. Such a widening of the sphere of planning is unquestionably based on a correct postulate, namely, that the process of development is a process of co-ordinated change in a country's political, social and economic spheres, as well as beyond its borders. In this connection G. Myrdal writes that "in the practical field, the inclusiveness, in principle, of planning ... is a recognition of general interdependence among the factors involved in a process of social change".* This does not recognise, however, that for a number of objective reasons, and especially because of the prevalence of private ownership of means of production in most developing countries and in the world capitalist economy, the entire process of development of the non-socialist world is largely spontaneous, uncontrolled and anarchic in nature. This is eloquently confirmed by the periodic crises that engulf individual spheres, or else the entire capitalist economy, and that pose substantial difficulties to the development of newly independent countries.

Most authors view planning in developing countries in a purely pragmatic way, as something that is almost self-evident. In the view of B. Seligman this is precisely how G. Myrdal views planning in his study *Beyond the Welfare State* which was published in 1960.** Another specialist on economic problems for developing countries, S. Wellisz, observes: "Twenty years ago ... the Marxian left advocated planning as the fastest and least painful path to growth. ... Doubts concerning the results of development planning notwithstanding, the question *whether to plan* does not arise in practice. ... The relevant questions are *how to plan* and *what to plan*."***

In a number of studies the need for planning is associated with an extension of the economic activities of the state

* Gunnar Myrdal, *Asian Drama*, Vol. I, p. 43.

** Ben B. Seligman, *Main Currents in Modern Economics. Economic Thought Since 1870*, the Free Press of Glencoe, New York, 1960.

*** Stanislaw Wellisz, "Lessons of Twenty Years of Planning in Developing Countries", *Economica*, London, Vol. XXXVIII, No. 150, May 1971, pp. 121, 122.

in developing countries or else with the need for planning such activities. In this connection J. Tinbergen and H. Bos note: "Historically the desirability of planning has become clear because of the inconsistencies that may exist among measures designed by various ministries or departments and divisions if those measures are based on a partial analysis only." * A large group of bourgeois scientists have long come to the conclusion that planning in economically less developed countries is dictated by the limitation of the factors of production and the need for their more rational and effective utilisation. **

In an article devoted to the planning of education in the least developed countries, T. M. Yesufu writes: "Educational planning as a scientific process is applicable in all countries . . . In the poor countries, however, it is of special relevance, partly because of prevailing high degrees of illiteracy and partly because of the extreme scarcity of resources which must, therefore, be spread both thinly and wisely." ***

A number of economists infer the need for socio-economic planning from the shortcoming or else insufficient development of the spontaneous market mechanism. B. Kumar, who is an Indian scientist, writes that "the need for planning arose from the desire felt the world over to secure the fulfilment of certain ends, which, it is increasingly being realised, the unregulated and unco-ordinated operation of economic and social forces cannot achieve." ****

While these and similar statements do contain correct evaluations of the situation in developing countries, they nevertheless suffer from an essential shortcoming. Although they refer to the need for planning they completely overlook the issue of whether objective possibilities for its realisation are in fact present in developing countries.

* Jan Tinbergen, Hendricus C. Bos, op. cit., p. 4.

** See, for example, Ajit Kumar Dasgupta, Amitava Sen, Jati Kumar Sengupta, *Planning and the Plans*, Calcutta, 1961; *Planning Economic Development*, Ed. by E. Hagen Homewood, Illinois, 1963, p. 17.

*** T. M. Yesufu, "Planning for Education and Training in the Least Developed Countries", *Journal of Development Planning*, United Nations, New York, No. 6, 1974, p. 42.

**** Birendra Kumar, *An Introduction to Planning in India*, Bookland Private Limited, Booksellers & Publishers, Calcutta, Patna, Allahabad, 1962, p. 6.

In non-Marxist conceptions of this problem, the possibility of planning socio-economic development in newly independent countries was initially nearly always associated with the presence of trained planning personnel and also the required statistical data.

Towards the end of the 1960s, however, it became clear that in most developing countries state plans are chronically unfulfilled and influence the course of economic development very modestly, and the term "crisis of planning" appeared in bourgeois scientific literature. This referred to a corresponding state of planning and their authors sought to show the uselessness and hopelessness of relying on planning methods in developing countries. While the "planning crisis" did not find a large number of adherents it did cause many scientists to turn their attention to the causes underlying the continual non-fulfilment of plans of development, and to the identification of more favourable conditions for the fulfilment of plans.

Their principal conclusion was that national governments must improve and develop their planning and economic institutions. This did not differ, in principle, from earlier statements concerning the possibilities and limits for applying planning. W. A. Lewis, for example, has written that "the secret of successful planning lies more in sensible politics and good public administration".* In the 1970s studies of bourgeois economists gave much attention to problems of improving planning institutions and measures of planning in developing countries.

N. Caiden and A. Wildavsky expressed the view that improvements in procedures for preparing budgets represent the principal way to improve the effectiveness of planning. In their opinion it is also necessary to provide for a greater flexibility in planning through such measures as reducing planning periods, overcoming contradictions between the staff members of planning bodies and civil servants in other government organisations, periodic elaborations of planned targets and a decentralised organisation of planning systems. Much importance is attached in these recommendations to one-year plans of development and to the concept of continuous planning.** A. G. Papandreou and U. Zohar believe

* W. Arthur Lewis, *Development Planning. The Essentials of Economic Policy*, London, George Allen & Unwin Ltd., 1966, p. 7.

** Naomi Caiden, Aaron Wildavsky, op. cit.

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that ultimately the success of a plan depends on the micro-decisions, that is, on the selection of specific projects. In this connection they emphasise that "the criteria for choosing projects and programmes must be such as to lead to micro decisions consistent with the strategy of the planning authority".* Similarly a study by L. E. Birgegård is devoted to problems of improving planning at the micro-level.** The author's main conclusion is that in the process of selecting projects in order to enter them into a plan, more attention should be given to the early stages of project planning, particularly to the design of a number of alternative variants for each project. M. Roemer proposes extending the principle of multi-variant approaches to all levels of planning from individual projects to that of rational and macro-economic plans.***

While one cannot deny the importance of the factors mentioned in these studies in the successful implementation of national economic plans, they relate to problems of superstructure, and are secondary in relation to the causes that derive from the socio-economic structure of newly independent nations. As before, bourgeois scientists do not wish to agree that the main cause for failures in carrying out overall national plans of development lies in the dominance of private forms of ownership of means of production in most developing countries, and their dependence on the world capitalist economy.

The question concerning the relation between plans, which represent state activities, and market mechanisms in governing economic development is exceptionally important both for the theory and the practice of planning. Bourgeois science recognises that the market mechanism possesses serious defects (such as unequal and unbalanced development, unemployment, and ineffective forms of utilising resources in many sectors) and that it cannot regulate the process of development effectively. But this does not mean that bourgeois researchers consider planning to be a substitute for the market mechanism. On the contrary, they view plans merely as instruments for correcting its principal de-

* Andreas G. Papandreou, Uri Zohar, op. cit., p. 3.

** Lars-Erik Birgegård, *The Project Selection Process in Developing Countries*, The Economic Research Institute at the Stockholm School of Economics, Stockholm, 1975.

*** Michael Roemer, op. cit.

fects and as instruments that complement it. François Perroux, who is a prominent theoretician of French planning, says that "the plan is a substitute for the market in all cases when the latter is not realisable, failing or superseded". *

The American economist B. Higgins, who participated as an economic expert in the development of plans for Libya, Indonesia, the Philippines, and certain other countries, provides a more detailed description of the relation between government economic activities and private markets in capitalist "planned" development. He writes that planning of development does not mean that the market is fully replaced by bureaucratic decisions. On the contrary, the more the market is employed, the better. The principal decisions constituting the skeleton around which more specific decisions are taken, as well as decisions concerning the scope and nature of capital investments, cannot be entrusted to the market just as it is impossible to entrust to the market the maintaining of full employment without inflation. But once that skeleton is established "consumer sovereignty" may prevail with regard to all remaining decisions. As the level of income increases so does the number of decisions that may be entrusted to the market providing that "effective" competition exists.... The basic principle of correct development planning calls for government decisions in only those cases in which it alone is able to take them effectively leaving to the market those decisions that only it can carry out in the most effective way. **

It is in the context of such a view of the role of planning in economic development that bourgeois economic science has advanced the thesis concerning the "indicative" nature of planning, i.e. its being non-mandatory and recommendatory as opposed to the directive nature of socialist planning.

The concept of indicative planning relates above all to the private sector. "The amount and kinds of private-sector investment should be fitted into the development plan as goals, which, it is hoped, private individuals and firms will

* François Perroux, *Le IV^e plan français (1962-1965)*, Presses Universitaires de France, Paris, 1963, p. 24.

** Benjamin Higgins, *Economic Development; Principles, Problems, and Policies*, New York, W. W. Norton, and Co. Inc., 1968.

voluntarily achieve." * A similar role is assigned to programmes for developing the state sector. It is true that some authors explain this in terms of formal juridical reasons. W. A. Lewis, for example, writes that "a Five or Ten Year Plan is not an authorising document, but merely a statement of intentions". ** The indicative nature of programmes of state investments follows logically from the subordinate role that is assigned to the state sector in economic development and also from leading role of the market mechanism in regulating that development.

In contrast to this representatives of the petty-bourgeois school of planning tend to assign a decisive role to state planning in regulating and ensuring socio-economic development. In their opinion planning must be of a directive nature, as is the case in socialist countries. They view the absence of a directive form of planning as a serious shortcoming in the general practice of state planning in developing countries. Many of them, however, display a fetishisation of planning, and view a well elaborated and legalised plan as a universal means guaranteeing economic development.

A logical consequence of such a thesis relating to the indicative nature of planning is an emphasis on methodological recommendations relating to the flexibility and frequent revisions of plans. These are usually explained in terms of the impossibility of predetermining a country's future development with sufficient certainty either because of the operation of various stochastic factors, or because of the fundamental impossibility of anticipating the future. Thus planning is essentially reduced to forecasting. The principle of flexibility calls for a continuous revision of plans and for their adaptation to changing conditions which is to be achieved with the help of yearly plan revisions and elaborations. In particular, "rolling" plans, whose essence lies in that they are revised each year as they are elaborated, and then continue for another year, are viewed by many bourgeois scientists as an important methodological discovery that is destined to realise the principle of flexible planning.

* Louis T. Walinsky, *The Planning and Execution of Economic Development*, New York, Toronto, London, 1963, p. 89.

** W. Arthur Lewis, op. cit., p. 148.

The principle of continuous planning possesses a somewhat different meaning. In its application to developing countries it was basically formulated by J. Tinbergen. In his opinion, an entire system of plans should exist, based on 15-20 year long-term plans of a forecasting nature. "The main purpose of a perspective plan is to provide a background to the shorter term plans, so that the problems that have to be solved over a very long period can be taken into account in planning over a shorter term." *

The next level, namely, 4- to 6-year medium-term plans, should then be concerned with specifying more concretely the problems identified in long-term programmes and should also define fundamental means and methods for solving them.

Finally yearly plans should form the foundation of this planning pyramid. They should be shaped in the context of medium-term programmes. Their principal role is to make all major objectives of state economic policy more specific at the level that is required for their practical implementation. "The main function of both five-year and perspective plans is to specify the government's intentions. One-year plans, on the other hand, have the task of setting out how the government's policy should be carried into effect." ** In other words, yearly plans are to serve as instruments for carrying out medium-term plans of development.

In the view of many researchers another equally important function of yearly plans is to enter necessary adjustments and additional specifications into medium-term plans in accordance with changes in the economic situation within the country and abroad. They must serve as instruments for lending to medium-term plans a needed element of flexibility.

A characteristic feature of bourgeois conceptions of planning is their primary emphasis on the financial aspect of planning, and in particular on capital investments and various forms and methods for realising them. Since production programmes are also reflected in any plan, an important part of bourgeois literature concerning planning is devoted to this subject. Yet they appear as derivative and sub-

* Jan Tinbergen, *Development Planning*, World University Library, London, 1967, p. 51.

** Ibid., p. 53.

ordinate elements in relation to programmes of capital investments. A leading role in bourgeois conceptions of planning is thus played by the monetary and financial form of social reproduction rather than by its material substance.

Such an approach is closely linked to theories of economic dynamics that view capital investments as the major factor of economic growth.

Unlike most Western theoreticians concerned with planning, both G. Myrdal and many economists from developing countries view the financial nature of contemporary state planning in developing countries as a fundamental shortcoming. They advocate a greater emphasis on the role of physical planning. This meets the needs that follow from the specific conditions and needs of developing countries more adequately than do the methods of financial planning borrowed from the West.

G. Myrdal writes: "A plan ... must be based on some kind of physical planning in terms of input requirements and output expectations of physical factors, goods, and services in the various sectors of the economy.... The fiscal-financial plan can be at best only a superstructure, built on the basis of a physical plan..., *all effective planning is physical planning.*" *

Such a point of view is close to the Marxist conception of socio-economic planning. The advocates of such a point of view, however, do not address themselves to the fundamental problem concerning the possibilities and boundaries within which "physical planning" may be applied in Asian, African, and Latin American countries.

At the present time the theory of macro-economic planning calculations is especially well developed. These are based on economico-mathematical models and methods. The position of representatives of various schools and trends among bourgeois theoreticians and practitioners of planning, however, is far from uniform, and the subject of applying economic models produces the utmost number of discussions.

The "programmers" are advocates of comprehensive applications of models. In particular, J. Tinbergen and H. Bos, in a study devoted to models of economic growth, have written that such models "must be applied practically, 'here

* Gunnar Myrdal, op. cit., Vol. III, pp. 1919, 1920, 1922.

and now', above all in underdeveloped countries".* Bourgeois econometrics has developed a large number of models at different levels and of different degrees of complexity. According to the "programmers" the application of particular models to the process of planning depends entirely on the availability of statistical information, computational equipment, and experienced planners, since all the models that they propose are supposed to be politically and socially neutral.

The "politicians" in bourgeois planning usually oppose the utilisation of econometric models and methods which are not suitable, in their view, for the preparations of plans, since they do not reflect the social and economic specifics of developing countries sufficiently comprehensively.

In one of the documents of the 3rd session of African planners (1970) it was noted that existing macro-economic models were designed in developing countries possessing a differentiated economy for their own needs and that it was therefore difficult to use them in most African countries today. W. Stolper notes two fundamental shortcomings in these models, namely, their political neutrality and their excessive dependence on unreliable statistics.**

The most systematic and comprehensive critique of econometric models and their utilisation in planning in developing countries is contained in G. Myrdal's study entitled *Asian Drama. An Inquiry Into the Poverty of Nations*. He notes the following shortcomings of such models: their reliance on constant coefficients, the possibility of including only one strategic variable (parameter of development) into such models, an excessive degree of aggregation, and their isolation from social structures.***

It is the constant nature of coefficients representing capital expenditures, technology, etc., that produce most of the objections that have been raised against models. In the view of many authors (A. Waterston, W. Lewis, G. Myrdal) this leads to a situation in which models essentially extrapolate past tendencies of economic development of former

* Jan Tinbergen, Hendricus C. Bos, op. cit., p. 8.

** See Wolfgang F. Stolper, *Limitations of Comprehensive Planning in the Face of Comprehensive Uncertainty: Crisis of Planning or Crisis of Planners?*, Ann Arbor Center, Center for Research on Economic Planning, University of Michigan, 1971, pp. 4-6.

*** Gunnar Myrdal, op. cit., Vol. III, p. 1946.

colonies and dependent countries at a time when in fact important structural shifts occur in their economies and social sphere which cannot be captured in contemporary models, nor can they be reflected in the economic plans. In our view there are many sound and correct assertions in these critiques of econometric models employed in planning practice.

Programmes of state economic activities form a central element in any plan of development. They are based on the various projects that they incorporate. The methodological principles that lead to their construction, however, have not yet been adequately clarified.

One of the complex and debatable issues in plan formulation concerns approaches to the selection of projects and the methods and indicators that would make it possible to establish the desirability of selecting particular projects and to evaluate the social effectiveness of required expenditures. A wide diversity of indicators and methods of evaluation have been proposed ranging from simple ones such as unit expenditures of capital, currency, and labour, to complex calculations of such measures as "marginal social productivity", and "external economies". It is far from clear, however, to what extent these recommendations reflect the specific characteristics of developing countries and, above all, to what extent they reflect their national interests.

In recent years representatives of bourgeois schools of planning have given much emphasis to the "harmonisation" of plans of development, and, more precisely, of the investment programmes and yearly government budgets that they incorporate. The absence of consistency among them is justly viewed as one of the major causes for the failure of many governments in implementing programmes of capital investment.

This represents, however, a simplified approach to a complex problem, since it refers only to improvements in procedures of short-term and medium-term planning of government expenditures and revenues.

State budgets reflect the overall situation in the economy of each developing country quite accurately. And many economic and socio-political processes within the country influence them directly. But it is seldom possible to anticipate these processes sufficiently in advance. The problem of "harmonising" budgets and plans of development cannot therefore be reduced simply to an improvement in the plan-

ning of state revenues and expenditures. Its solution depends on whether the desire for "harmonisation", i.e. a stabilisation of the entire socio-economic development of the country, may in fact be achieved.

An important branch of non-Marxist conceptions of planning concerns the methodology for designing programmes for developing private sectors. A number of studies express the view that in the absence of control over private enterprises and firms planning outside the state sector is at best experimental and of secondary importance. * Much attention is also given by many bourgeois scientists to the elaboration of a complex of means and methods of state economic policy that would make it possible to regulate the development of the private sector in ways that would accord with government plans. It would appear that G. Myrdal is right when he writes that from the point of view of planning private capital investments are a function of government investment and of *many other measures of government policy*, both incentive ones and limiting ones and that government regulation should stimulate actions of entrepreneurs corresponding to a given plan of development. ** Yet the possibility of a government *regulation* of private enterprises does not yet constitute a possibility of planning it. In considering the advantages and shortcomings of direct administrative control and regulation, as opposed to indirect economic regulation and stimulation, most theoreticians and practitioners of planning prefer the use of the latter. As was noted in studies of the United Nations concerning planning the influencing of decisions taken in the private sector should be undertaken mainly by the development of "basic services" and should rely on appropriate adjustments in systems that stimulate particular activities. In seeking to show that indirect regulation is preferable to methods of "physical" control and regulation bourgeois economists usually advocate the use of credit and of monetary and financial methods of regulating and stimulating private enterprise. Specialists of the International Bank for Reconstruction and Development, for example, emphasise in one of their studies the inadmissibility of direct measures of state regulation of private entrepreneurs. In their opinion "the private sector can be re-

* Naomi A. Caiden, Aaron Wildavsky, op. cit.

** Gunnar Myrdal, op. cit.

regulated much more efficiently, safely, and at less cost by providing the right price signals than by direct intervention".*

One of the means proposed by advocates of the bourgeois conception of planning for implementing state programmes of development of the private sector concerns attempts to convince private entrepreneurs to behave in accordance with planned indices. It is presumed that the non-fulfilment of such indicators can be explained primarily by the lack of civic responsibility and by insufficient information concerning the objectives and tasks of state planning. The French economist R. Badouin has even formulated a special conception of "planning through persuasion".

The experience of developing countries shows the erroneous nature of such an approach to planning the development of the private sector. For the principal stimulus to its development is private revenue, whose formation is only partly influenced by state economic policies and in a manner that is seldom decisive. Practical experience shows that efforts of national governments in regulating and encouraging private entrepreneurial activity are successful only when a favourable market situation exists within the country and abroad, i.e. when the corresponding efforts are "superimposed" on such situations. In other cases state economic policies are often not very effective and government tax and other incentives are too weak by comparison with the influence of the market.

Such are the major elements of non-Marxist conceptions of socio-economic planning in developing countries. They represent a variegated combination of individual recommendations that are usually rational within their own context with incorrect theoretical generalisations and conclusions. The latter, above all, refers to excessively wide interpretations of planning that reduce it to the level of any conscious or goal-oriented activity on the part of the government, and hence to one that is possible in any socio-economic conditions and in relation to any social formation. According to these conceptions it is merely the natural economy that is not subject to planning for it lies beyond the reach of state regulation and control.

* *Kenya: Into the Second Decade. Report of a Mission Sent to Kenya by the World Bank*, published for the World Bank by the Johns Hopkins University Press, Baltimore and London, 1975, p. 19.

1.3. PLANNING IN DEVELOPING COUNTRIES: DISTINGUISHING CHARACTERISTICS

A consideration of the basic and specific characteristics of the socio-economic development of Asian, African and Latin American countries indicates that the process of economic reproduction within those countries possesses a number of specific features calling for a distinctive approach to problems concerning the proportions of reproduction and the guidance and management of economies.

While the general level of development of productive forces is low in such countries, and while they are economically lagging, there are sharp differences in the levels of economic development of individual sectors within their economies and regions. One finds both enterprises based on highly productive modern technology and others based on manual labour employing techniques, methods of production, equipment and forms of labour organisation that are medieval. The economies of developing countries possess a number of formations. In typical cases modern capitalist production coexists with pre-capitalist formations, market-oriented production with semi-natural economies, and highly monopolistic sectors with large numbers of small producers of a pre-capitalist type. (Such a simultaneous existence of several different formations is particularly evident in the developing countries of Africa and Asia, but is less pronounced in the countries of Latin America, where capitalism represents the dominant method of production.)

In terms of economic relations the developing countries gravitate towards the world capitalist system. They do so, however, as a dependent periphery of that system's economically most developed centres, rather than as national economic complexes possessing equal status. In many respects the process of reproduction in developing countries is determined by external factors associated with their economic and scientific and technical dependence rather than by internal ones.

Their economies are currently characterised by a low level of integration, weak internal intersectoral and intra-sectoral relations and also the existence of economic enclaves associated with foreign countries rather than with their own economies.

Taken together these socio-economic traits of newly inde-

pendent countries define the proportions of their national economies in a specific manner. Above all most of their economic proportions develop under the influence of external factors rather than as a result of internal reproduction linkages at the level of national economic complexes. At the same time many of these proportions possess an unstable and shifting character and unlike in the case of developed economies may vary within very wide boundaries. In particular, this is true of proportions between consumption and accumulation.

Together with the coexistence within them of a number of economic formations specific features that characterise their socio-economic structures result in a particular mode of operation of the autonomous market factors that establish economic proportions and also constrain their sphere of operation as well as the intensity with which they influence the division of labour among individual sectors and economic spheres.

At the same time the parallel existence of a number of formations within the economy, together with the absence of sufficiently powerful economic classes within the corresponding national societies able to assume the responsibilities of state power, produce both a definite possibility and a necessity for the state to assume functions of guidance and management in relation to national economies and for the introduction of elements of planning in their development.

Within economies characterised by several parallel formations, a generally low level of development of internal markets, and by sharp differences in the extent to which individual sectors of the economy participate in the social division of labour, the role of market mechanism and of forces of autonomous regulation over the process of economic reproduction is relatively weak. The internal autonomous forces are insufficient to bring about the kind of re-distribution of labour and of financial and material resources on a national scale that rapid economic growth would require.

The relative importance of small-scale commodity producers and of semi-natural households characterised by a low productivity of labour even though they do provide both work and minimal means of livelihood to a majority (or else a large part) of the population limits the possibilities provided by autonomous market factors for changing proportions in the distribution of labour.

In view of the generally low level of development of productive forces in former colonies and dependent countries, of their frequent specialisation in single crops, the one-sided development of their economies, and their orientation on exports, the operation of autonomous market regulators alone cannot bring about a fundamental reconstruction of their economic structures and cannot overcome their economic dependence. Their initial dependence on the world capitalist economy, moreover, causes the operation of autonomous factors and of laws characteristic of "market economies" to merely strengthen and intensify that economic dependence. Such factors cannot overcome their backwardness and lead them to achieve a position of equality within the world economy.

In order to overcome the economic and social backwardness of developing countries and to bring about their economic independence many decisions must be taken that inevitably contradict the laws and tendencies of development of market economies. In particular, such a need arises most often in connection with the establishment and development of national processing industries that could be easily suffocated under the conditions of a market economy by the competition of more powerful and better organised industries of developed capitalist countries whose own position on corresponding markets is well established.

Developing countries encounter many economic, social and political difficulties and contradictions as they seek to resolve complex economic and social problems. These difficulties and contradictions cannot be overcome simply through the operation of spontaneous mechanisms. They call for conscious activities on the part of individuals who simultaneously consider all social and political factors rather than economic factors alone.

In this way a number of factors and conditions of development produce a situation in which elements of planning must be introduced into economic life. The corresponding need for limiting unregulated modes of establishing economic proportions and for changing over to balanced development is particularly strong whenever the problems calling for a re-organisation of existing economic structures have become urgent and when the restructuring that is envisaged is comprehensive.

The current transition of the overwhelming majority of ✓

developing countries to principles of planning in developing their economies is thus a reflection of an objective need rather than of a merely fashionable trend. They are pushed into such a path by objective developments. At the same time the experience acquired through the development of a planned economy in the USSR and in other socialist countries serves to illustrate to all developing countries the fact that the introduction of planning principles provides an effective basis for identifying clearly both the objectives and tasks of development and concrete ways and methods for achieving them and for mobilising the resources that the current as well as the long-term tasks of development require.

In particular, economic planning serves two major functions in developing countries:

✓ 1) it makes possible for the state to formulate both its overall economic policy and its policies in relation to individual spheres and sectors of the country's economic life in operational terms;

2) it makes it possible to identify, mobilise and distribute available financial, material and labour resources in accordance with the tasks and objectives of development chosen for a particular segment of time.

The *subject* of planning is the state (its political, administrative, and economic agencies) as it seeks to relate its planning activities to all component parts of the national economy. ✓

The *object* of economic planning (depending on the specific conditions that exist for a particular developing country) may be either the entire national economy or else individual sectors and spheres.

The socio-economic essence of planning relates to the establishment of basic economic proportions, of rates of development of both the economy as a whole and of its individual sectors, of the level and material composition of production of social output, and of its distribution and utilisation, in accordance with a plan defined in advance rather than through autonomous processes. In short, proportions are established as a result of the conscious activity of persons basing themselves on a knowledge of objective economic laws characteristic of a specific method of production and distribution and on a consideration of both the specific socio-economic conditions that currently exist in the given

country and those that may arise during the planned period.

For planning not to be limited to simply the formulation of plans but actually serve as a means to influence the process of economic reproduction, special economic and social prerequisites are needed. They include the use of state power to create both an economic base and the socio-political conditions that will make it possible to limit the sphere of operation of both internal and external autonomous factors and to weaken their influence in the distribution of labour, material, and financial resources among individual sectors and spheres of the economy. They also include a simultaneous use of the foundations provided by planning to effect a transition to the direct establishment of needed proportions.

In economies possessing a number of parallel formations, the creation of an economic basis for planning calls for a definite reorganisation of relations of property in the means of production and for changes in the distribution of the social product and of the national income.

The extent to which means of production are socialised is the principal determinant of the possibility of relying on principles of planning in a developing economy. More specifically experience has shown that the following factors play a major role:

- a transfer of large capitalist enterprises in sectors of material production to the national state, or else the establishment of effective state control over their activities;
- the nationalisation of the main elements of the country's economic infrastructure which make possible the process of material production;
- assigning a commanding role to the state or else the creating of a state monopoly in the sphere of credit and banking, foreign currency operations and external trade, that is, subordinating to the state those elements of the sphere of circulation that directly influence the entire course of economic reproduction.

In the case of economies possessing a number of parallel formations, however, as well as a low level of development of productive forces and in which small-scale commodity producers and semi-natural households occupy a dominant position, the possibilities for nationalising both production and institutions in the sphere of circulation are

sharply limited. Accordingly, it is impossible to rely on planning alone in establishing desired proportions in the distribution of material, financial and labour resources among individual sectors and spheres of production. Yet it should also be recognised that in the case of developing countries it is impossible to identify with precision the size and boundaries of the particular economic base for which a planned form for establishing desired proportions would become dominant and would make it possible to direct the country's principal processes and the direction of its socio-economic development.

The possibilities and extent of influence of planning over the development of an economy depend not only on the presence of a material base but on many other factors as well, including the manner in which planning activities are organised and the quality of planning.

A generalisation of the experience of a number of developing countries makes it possible to formulate a series of requirements bearing on the economic basis of planning in the most general terms.

Since one of the principal factors limiting the possibilities of economic growth is the insufficiency of resources for financing capital investments, the state must concentrate a major part of monetary accumulation either in its own agencies or else in credit and banking institutions under its control and then redistribute them either through direct state financing of the national plans envisaged or else by financing them through banking and credit activities.

Past practice has made it evident that this will not be achieved by means of ordinary budget policies. There is a need for either nationalising or else establishing effective state control over those sectors of production that account for the major part of a country's internal monetary accumulation and particularly over enterprises turning out considerable amounts of export products. In such a context state control over the country's credit and banking institutions plays a major role. This is especially true of those credit and banking institutions whose possibilities for mobilising monetary means and financing capital investments expand as commodity-money relations develop within the country and contribute to the formation of a market for loan capital.

The possibility of relying on state control over credit and

banking institutions (and especially on the nationalisation of banks, insurance companies and savings institutions) in effecting a transition from the financing of capital investments from standard budgetary sources alone to a utilisation of all available financial resources (including the state capital investments created through deficit financing) has been confirmed by the experience of a number of developing countries.

In order that external means received both in the form of assistance to states and in the form of private capital investment be directed to the financing of those projects whose realisation is envisaged by overall national plans and that they contribute to general economic growth and extension of possibilities of internal accumulation, the state must have effective levers of control at its disposal over the inflow of external resources. For otherwise the inflow of external resources may lead to a growth in external indebtedness and be transformed into a factor that will hamper subsequent economic development.

Effective state control over the utilisation of a country's foreign exchange reserves created as a result of exports and of inflows of capital is an important factor in defining the economic basis of planning. The following elements are particularly important in this respect: state control over imports and state monopoly over foreign exchange. This makes it possible for the state to acquire the foreign exchange earnings derived from exports, and then to control their use in such a way as to finance specific imports, above all imports needed for the implementation of national economic development plans.

The effectiveness of this type of control may be increased by introducing either full or partial state monopoly over the importation of commodities and services. For this makes it possible to regulate the proportions of foreign exchange expenditures on the importation of means of production and of items of consumption in a more purposeful manner, as well as to avoid the importation of items that are produced within the country itself. This produces conditions that are more favourable for the development of national industries.

Thus a number of factors operating in developing countries create both a need and a possibility for introducing principles of planning into the process of social reproduction. But while in the case of socialist economies the need

and possibility of planning is primarily determined by social forms of property in equipment and means of production, in the case of developing countries it is determined by a number of factors that are often of a contradictory nature. The influence of planning on the process of reproduction in such countries is limited, and in a number of cases planning is essentially reduced to economic forecasting.

Both in developing countries as in any other socio-economic and political conditions, planning cannot be neutral either in relation to social structures or the character of state power. For as a means for expressing the economic policy of the state, overall national planning reflects the interests of those social forces that control state power and provide a basis for its operation. It is the social basis of state power and its political orientation and character that largely determine the objectives and tasks of planning, the means through which these objectives are achieved, and the general manner in which the operation of planning influences reproduction.

It has already been emphasised that when taken in overall national context, all production activities reveal a social character. In particular it is not only the material conditions of the existence of society that are reproduced through the process of production and circulation, but also specific social relations, namely, relations of ownership over means of production and over their output, and relations of distribution of incomes and material and spiritual wealth among individual classes, social strata, and groups of society.

When the proportions of social reproduction are subject to autonomous regulation a mechanism providing for the expanded reproduction of the existing (above all dominant) production relations exists. Its operation begins to be limited as elements of planning are introduced, which then begin to influence the distribution of incomes and of material and spiritual wealth among members of society. Thus, for example, in cases in which planning envisages that the major part of internal monetary accumulation and of external resources be utilised for financing capital investments within the state sector of the economy, and that investment in the private capitalist sector be reduced, this means that planning will operate in such a way as to limit the position of private capital within the country and reduce the sphere of capitalist exploitation and of appropriation by the owners

of capital of the major part of the overall income resulting from the process of production and realisation of the social product.

Together with such specific measures of state economic policy as the regulation of prices (especially on vital consumer goods), the regulation of labour conditions and of the level of wages, particular rules for the taxation of incomes and profits, concerning indirect taxes, as well as other manifestations of state power, planning in developing countries operates as a factor actively influencing the formation of social relations. Depending on the nature of the social strata and groups of the population in whose interests planning seeks to influence relations of ownership as well as in the distribution of income and of material and spiritual wealth, there emerges a specific social basis for planning that defines equally specific socio-political prerequisites for the introduction of planning principles.

A correspondence between national plans and the interests of the majority of the population and of the principal social strata on which state power is based extends the foundations of planning. It also increases its effectiveness.

It is important to keep in mind in this connection that following the achievement of independence certain generally shared national interests appear in the overwhelming majority of the developing countries, together with tasks whose solutions serve the interest of all major strata of national society. At the same time, however, contradictory economic and political interests of individual social strata and groups of the population also continue to exist. For example, all groups of the peasantry and workers, as well as the major part of the petty and middle bourgeoisie, and of craftsmen, intellectuals and certain other groups of the population may all be interested in a substantial development of the national economy, including its development through the establishment of a state sector within industry. Yet the development of a state industrial sector may also interfere with the economic interests of certain strata of the national bourgeoisie which have contributed their capital to industrial enterprises. At the same time it may also contribute to the growth of profits among the commercial bourgeoisie. Even sharper manifestations of differences that exist in the economic interests of individual strata of the population may result from state measures associated with

economic planning, bearing on the regulation of different aspects of economic life. This may result, for example, from sharp differences in rates of taxation on incomes, from the regulation of prices and of wages, and from other measures of economic policy that are either directly or indirectly aimed against individual classes or social strata.

Whenever the socio-political basis of planning is extended and wide strata of the population participate in the elaboration and implementation of planned objectives the effectiveness of planning tends to increase. This includes discussions of individual aspects of the plan by local organs of government, trade unions, and collectives of workers of large enterprises, as well as the establishment of control of such bodies over the implementation of plans and over expenditures of material and other means that are assigned to serve social needs and the objectives of development.

Accordingly, planning may not be seen merely as an economic activity of the state. It always carries a socio-economic and political content and as a result both the overall direction of planning and individual planning tasks and indicators may represent objects of intense political struggle.

For a large group of developing countries seeking to introduce the principle of planning into their economic development, planning does not extend beyond the state sector. National plans may then be effectively reduced to state programmes of capital investments, since the investment and other economic activities of the private sector are not planned. What are, then, the objective limitations on the planning of the development of major socio-economic sectors when a number of parallel formations exist (including a state sector, a sector of mixed activities that combines state activities with those of private capital, co-operative activities extending to co-operation in production, a private capitalist sector, both national and foreign, and small-commodity producers together with forms of semi-natural production)? To what extent do these sectors lend themselves to planned regulation?

The major elements of the economic basis serving the introduction of elements of planning in economic development are state ownership of means of production and the full or partial monopoly of the state in individual spheres of economic activities. There is no doubt that the state sector and economic activities of the state lend themselves best to

planning and regulation. Yet in economies in which there are many parallel formations, the state sector cannot avoid being exposed to the influence of autonomous factors. This is because the state sector is only *one of several economic sectors* in developing countries. In view of the diversity of relations of reproduction, its development is associated with that of the overall national economy. It is also subject to the influence of external factors which in most developing countries represent an important element. The process of reproduction combines all these sectors into a more or less coherently integrated and inter-dependent economic organism. The greater the extent to which enterprises of the state sector are linked to the internal market, the greater the extent to which its development is based on financial, material and labour resources received from other sectors, the more the development of the state sector will depend on that of other sectors.

A recognition of this unity of the process of national reproduction and also of its strong dependence, in the case of most developing countries, on external factors leads to a number of important conclusions bearing on the limitations that attach to the capacity of planning to influence the development of individual sectors. Very briefly they may be described as follows:

1) In economies possessing many parallel formations the state sector cannot develop fully in a planned manner. To varying extents it is subject to the influence of autonomous factors, even though the intensity of their influence on the development of the state sector is reduced as its own position within the country's economy is strengthened and extended.

2) The presence of a relatively developed state sector, particularly in branches of the economy possessing highly differentiated economic and financial relations with other sectors, reduces the extent to which autonomous factors influence their development, and within certain boundaries they become receptive to planning.

3) Forms of planning that extend only to the state sector or else to individual elements and types of activities of that sector are usually less effective than forms of planning that are aimed both at developing the state sector and at introducing the principle of planning into the development of other sectors.

An analysis of possibilities and limitations that attach to the influence of planning both on individual economic sectors and on the general economic development of countries possessing several parallel formations suggests important conclusions concerning the role of forecasting in economic development and the possibilities of strengthening the effectiveness of planning through corresponding measures of economic policy (cf. 2.3.8).

By its very nature the private capitalist sector lends itself most to the influence of market relations. The direction of its activity and the rate of its development depend on the current state of capital markets, on existing possibilities for marketing its output and also for obtaining raw materials, other materials, capital equipment, and the different types of productive services, and on the current state of the labour market.

The development of private capitalist production is governed by autonomous processes. Nevertheless, and precisely because of the comprehensive nature and diversity of commodity-money relations (market relations) within that sector, the existence of a relatively differentiated state sector together with the establishment of monopolistic positions (or else commanding positions) by the state in selected sectors of national production and also in the sphere of circulation (the credit and banking system, external trade, the distribution of foreign exchange) may produce substantial constraints on the operation of autonomous factors in governing the development of the private capitalist sector and may also operate in such a way as to partly subordinate it to planning. This is especially true of the national private capitalist sector, since it is linked less closely to external markets. More generally, the closer is the dependence of enterprises of the private capitalist sector on external markets lying beyond the sphere of influence of the national state of a developing country, the less responsive they will be to planning. The economic and financial relations of small-commodity producers with enterprises of the state sector are usually limited, since they rely far less on the services of credit and banking institutions and on large-scale wholesale trade. This limits sharply the possibilities for introducing elements of planning into the development of small-scale commodity production. That reservation is even more true of households engaged in semi-natural forms of production.

The receptiveness of small-scale commodity producers to elements of planning and to state regulation increases substantially, however, when they unite into co-operatives (in the sphere of supply, credit and especially production). Since co-operative activities among small-scale commodity producers increase the marketed share of output and lead to a further development of their economic and financial ties with other sectors and spheres of the economy this widens possibilities available to the state for influencing the course of their development. In addition, such purely technical factors as their ability to absorb the type of information that planning requires as well as the greater simplicity of formulating and conveying plans to a smaller number of district organisations also play a certain role.

The fields and phenomena of economic life that develop under the influence of autonomous factors and therefore cannot be planned should be subject to forecasting. Measures of administrative and economic regulation, however, can be applied by the state to influence some of the processes which on the whole do not lend themselves to regulation. In working out plans relating to such processes it is possible to apply so-called normative or goal-oriented forecasting.

The role of economic forecasting is especially great in the case of developing countries, for they encompass aspects and areas of economic life that develop under the influence of autonomous factors and therefore cannot be planned. Naturally, as the sphere of forecasting is increased and as its normative character is further emphasised, this makes it possible for planning to exert a greater influence on the process of reproduction and on its component elements. The role of forecasting is especially important in the elaboration of development plans for the private capitalist sector and the sector of small-commodity producers, and also in external economic relations. In addition, since because of the unity of the reproduction process it is impossible for the state sector of developing countries to develop entirely in a planned manner, normative forecasting plays a substantial role as an element in planning the activities of the state sector itself.

The mutual relations of state enterprises and especially their relation to the state budget are usually planned. In such situations, too, however, there is no clear boundary

between planning and forecasting, for the unity of the reproduction process manifests itself in a great diversity of indirect linkages (linkages of the second, third, and higher orders) as well as in direct linkages (linkages of the first order). In particular, the relations of enterprises of the state sector to the budget (the level of taxation on profits of state enterprises) depend on the outcome of their economic activities. Yet because of the large number of economic and financial relations that link them with the private capitalist sector and with external markets, it is not possible to plan them with great precision. Accordingly, the state budget's planned revenues from the state sector enterprises are partly based on data of the forecasting type.

Naturally as the planned period increases the sphere of forecasting extends owing to a reduction of the field of planning proper, and the reliability of forecasts declines.

Because of the multiplicity of formations within their economies, planning in developing countries cannot be of a directive type in the strict sense of that term, even in relation to the state sector. For planned data cannot be interpreted as directives when they are based on forecasts of autonomous economic processes. And yet it is always *desirable* and *necessary* that the entire state administration and state agencies as well as firms and associations on whom the implementation of the state's economic policy depends view the plan as a *guide to conscious activity rather than as a wish or recommendation*.

Departures from plan directives are appropriate only in the event of changes in objective conditions, that is, changes that are produced by failures of the forecasting part of the plan to accurately reflect actual processes. For example, the state treasury may fail to finance state capital investments because the actual volume of budget revenues differs from planned expectations (perhaps because of sudden shifts on external markets).

In economies possessing multiple formations, planning activities are not the only form of guiding the process of reproduction. For even when a relatively comprehensive material and socio-political basis for planning exists market processes continue to influence the reproduction process substantially. Accordingly, failures to carry out long-term plans of development fully in such countries cannot provide an argument for rejecting the principle of national economic

planning itself or serve as evidence of a "planning crisis" in the economies of developing countries. Such a point of view, which is not justified theoretically, may lead to a failure to utilise enormous potential possibilities for overcoming the many problems of backwardness.

In view of these specific features and functions of planning in developing countries, a special approach is needed for evaluating the extent of plan fulfilment. In particular, success in planning, too, is not determined by a full achievement of all planned indicators (since many of them must be based on forecast data).

When evaluating the outcome of planning activities, one must consider first the extent to which the direction of the process of reproduction has been influenced in the desired way. This includes the distribution of capital investment among sectors of the economy, changes in the structure of production, the priority development of specific sectors, changes in trends relating to income distribution, and the level and composition of consumption. The actual influence of planning on economic processes is always increased, of course, by methodological improvements at all stages of planning (from the development of national plans to monitoring and control of their implementation).

An analysis of the possibilities of influencing overall national development as well as the development of individual sectors of the economy through planning leads to still another important conclusion concerning planning methodology in developing countries. This is that one of the specific elements and methods of planning in these countries is the introduction of specific adjustments and improvements in accuracy into planned objectives and indicators in the course of implementing long-term plans that are based on the availability of more reliable forecasting data. This contributes to a better co-ordination of planned objectives with actual possibilities. It would, of course, be inaccurate to describe such activities on the part of planning agencies or of state power as incorrect, as "planning manipulations", and so on.

Improvements in the accuracy of plans that are made in the course of their implementation make it possible to continuously improve their realism and effectiveness, and this is especially important under the conditions that prevail in developing countries. At the same time the scale and nature

of such improvements in accuracy must not lead to changes in the overall direction, and strategic objectives and tasks envisaged by the plan.

The specific features that attach to planning in developing countries and the particular role in the elaboration of plans of development that is played, in the case of economies possessing multiple formations, by forecasting make evident the importance of the activities of state agencies concerned with the management and guidance of economic life.

It would be wrong to view planning as a universal instrument with the help of which it is possible automatically to steer economic development in desired ways.

While the development of an accurate and well-documented plan represents an important stage in planning activity, it is by no means the only one. Above all the measures that are intended to bring about the realisation of the plan are no less important. A number of specific conditions are needed in order that the process of reproduction take place as is intended by the plan and in order that economic activities be carried out in accordance with planned objectives. A major role in this respect is played by the state economic policy and by the entire range of specific political, economic and administrative measures that the state undertakes. While there exist important feedback relations between economic policy and planning itself it would be a mistake to identify these two elements.

On the one hand, planning reflects and makes more concrete the objectives of economic policy, and also represents one of the principal means of achieving these objectives. At the same time, the various instruments of economic policy must be integrated with the plan and contribute to its implementation. Such specific political and economic measures and forms of state regulation of economic processes corresponding to the objectives and tasks of individual plans tend to reduce the sharpness of the distinction between forecasting and planning the process of reproduction. For they transform economic forecasting from a method of passive evaluation of the future into an instrument for exerting a goal-oriented and relatively effective influence on future economic development.

Two general methodological requirements concerning measures of administrative and economic regulation (direct and

indirect) aimed at increasing the effectiveness of planning in multi-formation economies may be inferred from the planning experience of socialist countries and that of a number of developing countries.

1) It is desirable that these measures be relatively comprehensive and integrated, and that they encompass all links and levels of the country's economic organism, ranging from the state's administrative agencies to individual enterprises, commodity producers and elements of networks engaged in distributing commodities or services, that is, all those links on which the implementation of plans ultimately depends.

2) All measures relating to the implementation of economic policy and management must be integrated with the objectives and tasks of plans in such a way that those economic activities that correspond to the general direction, objectives, and concrete indicators of the plan, be encouraged, stimulated and facilitated, while activities working in opposition to tasks and objectives of the plan be made more difficult, constrained or else be simply prohibited.

These measures must thus be simultaneously complex in character and integrated and selective in terms of their intended influence on socio-economic development.

Both the possibility and the desirability of carrying out specific political, economic, and administrative measures are defined by the specific situation prevailing in a country at a given time. They depend on the objectives and tasks identified by the plan and especially on the general direction pursued by the state's economic policy.

All measures concerned with the economic and administrative regulation of economic activities may be described in terms of a number of basic attributes. These include:

- the principles on which regulation activities are based;
- the methods through which they are applied;
- the methods of regulation that are employed;
- the objects that are being influenced;
- the tasks and objectives set by the state.

There exist *two basic methods* for regulating economic activities: *those that encourage and those that constrain*. Methods that encourage refer to activities that stimulate, facilitate and enhance activities that the state views as desirable. This is illustrated by the wide use of taxation policies that stimulate capital investments, of taxation laws

providing for rapid amortisation payments, and of measures that provide easy credits as well as subsidies.

Similarly forms of regulation that discourage particular activities operate in such a way as to forbid, make more difficult, and limit types of economic activity that the state wishes to avoid. Corresponding types of regulation often take the form of administrative prohibitions. It may be forbidden, for example, to transfer abroad profits derived from foreign capital investments, or else to import specific commodities. That general principle, however, may also underlie economic forms of regulation, as in the introduction of high indirect taxes and import duties on individual commodities, in the establishment of increased prices on electrical energy or transportation services (in order to limit their use), and increases in the rate of taxation of profits resulting from particular types of activity.

While the principles underlying these methods of regulation are diametrically opposed, nearly all measures concerned with the regulation of economic activity combine elements of encouragement with elements that limit particular activities and differentiate their application to individual spheres.

For example, while from the point of view of importers the regulation of imports and of foreign exchange expenditures through licensing or else the establishment of high duties on the imports of textiles, clothing, and shoes represent measures of a limiting type, they simultaneously stimulate the development of light industries and leather goods industries within the nation. Hence from the point of view of the producers of these commodities, they appear as forms of regulation that encourage particular activities.

It is therefore especially important to establish the sphere of influence and direction of change of particular methods of regulation.

With regard to *methods of application*, one may identify two basic forms of regulation, namely, so-called automatic forms and discretionary or subjective forms. In the first case this refers to the establishment of firm rules under which any economic activity in a specified sphere or area is either stimulated or else limited in particular ways. For example, profits invested in industry may be exempted from taxes, or the transfer of profits abroad may not exceed 5 per cent of total profits. Under discretionary methods of regulation,

on the other hand, specific measures for encouraging or limiting individual activities are applied on the basis of corresponding acts of legislation or else administrative directives that depend on subjective interpretations of the current situation. A diversity of methods are available to the state for regulating individual aspects of economic life and particular types of economic activity. Nevertheless, allowing for a certain simplification, they may be reduced to several basic groups:

1) the creation of state monopolies in individual spheres of economic life and for selected types of economic activities such as the importation and exportation of specific groups of commodities, their marketing within the country, and the allocation of foreign exchange;

2) the use of licensing systems for specific types of economic activity or particular types of commercial operations, such as imports, payments in foreign exchange, and the utilisation of transportation services. The granting of franchises to produce particular commodities or exploit natural resources also belongs to this group;

3) the establishment by the state of various quotas, norms and limitations in relation to particular indicators that either determine or else describe specific types of economic activity;

4) the direct appropriation by the state of a part of the surplus product and its redistribution from corresponding centralised funds in such a way as to solve particular economic and social tasks through the state financing system, credit and banking networks, price mechanisms and other channels.

It is primarily in order to influence production and consumption activities that the state employs various methods of economic and administrative regulation. In the case of developing countries, however, these stages of reproduction do not lend themselves easily to direct regulation, and state regulation activities therefore extend directly to marketing and exchange, and to the market relations within which value categories appear. These regulation activities are indirect in nature. In the case of developing countries the state carries out a direct regulation (a goal-oriented influencing) of the following spheres:

—the financial sphere, including taxation policies;

—credit relations, banking operations and monetary circulation;

- prices and wages;
- the exportation and importation of commodities and services, together with currency operations;
- the transfer of capital and of incomes;
- the distribution of labour power, and labour relations;
- the distribution of raw materials, other materials, and different types of services, particularly technical services;
- the distribution of final output.

In such cases, moreover, the true objectives of state regulation may not be explicitly visible and actual regulation is indirect in character, while the visible objects of direct regulation merely serve as levers for influencing other objects. The regulation of prices, for example, may actually represent a lever for the regulation of both production and consumption. By regulating the rate of interest the state is able to influence entrepreneurial activity and particularly the scale of investments. Similarly, limitations on imports in the form of quotas may be used to stimulate domestic production or else to improve the balance of payments.

The most important aspect of the various regulation measures that may be employed concerns the general direction of development that they encourage, that is, the particular tasks and objectives that the state seeks to achieve.

At the same time, nearly all methods of economic regulation influence economic life in a diversity of ways and produce side-effects in other areas and spheres. For example, the regulation of prices in such a way as to ensure a stable level of real consumption will also influence the production of commodities whose prices are subject to regulation and capital investments in the corresponding sectors.

The same instruments and levers may be employed to simultaneously regulate several processes and forms of economic activity. For example, the regulation of prices or credit availability may influence both personal consumption and investment activities, while taxation policies may influence both the profits of individual producers and the general level of consumption.

While measures of economic and administrative regulation relate to the general objectives of state economic policy (this is equally true of short-term and medium-term plans and of programmes of development), they must also be defined in operational terms, that is, in such a way that they

may subsequently be related to changing economic conditions.

Together with a number of other persons who have studied these problems we share the view that in the conditions that currently prevail in developing countries, the formulation of measures of economic regulation may be viewed as a component element of planning, for the formulation of overall national plans includes the specification of appropriate economic policy instruments.

Since the state is interested in seeing its plan realised, including those parts of the plan that relate entirely to forecasts, it should seek to endow forecasting plans with a normative character. This, too, is achieved when appropriate operational measures are specified during the formulation of the plan itself.

That part of the plan will thus be specified as follows:

- 1) those tasks and indicators of the plan are defined whose execution requires the simultaneous creation of specific conditions through measures of economic and administrative regulation;

- 2) the levers and objects to be influenced are identified in the light of earlier experience and of existing specific conditions as well as of their expected effectiveness and possible side-effects;

- 3) the most appropriate methods and principles of regulation are selected and their organisational and juridical basis is established, with due account of concrete organisational possibilities and of the prevailing political situation in a given country.

In concluding this examination of the relationship between economic policy and planning and of the role of state regulation of economic processes in the implementation of plans it is important to recognise that there exist specific difficulties in the case of developing countries in formulating economic policies and implementing them. In particular, the formulating of economic policy is generally constrained by the presence of multiple formations within their economies and is accordingly exposed to the direct or indirect influence of a diversity of social forces. A contradictory character of concrete measures of economic policy is therefore a normal factor in such countries reflecting objective conditions. It expresses the influence of their economic basis on the political superstructure.

1.4. THE INFLUENCE OF THE SCIENTIFIC AND TECHNOLOGICAL REVOLUTION ON STATE PLANNING IN DEVELOPING COUNTRIES

The scientific and technological revolution is an extremely complex and in many respects a contradictory phenomenon possessing many aspects. While there exist a number of highly diverse definitions of its essence, there is no doubt that on the whole it represents a qualitative leap in the development of productive forces that derives from a wide utilisation in production of the latest achievements of fundamental sciences, including nuclear physics, chemistry, and biology. The transformation of science into a direct productive force in society, along with its orientation on urgent problems to a much greater extent than in the past, is one of the most essential traits of that revolution.

The scientific and technological revolution is also global in character even though it may proceed at differing rates and assume different forms. While a diversity of economic, social and natural-climatic, as well as scientific and technological factors explain why it proceeds at different rates in different parts of the world, differences in levels of scientific and technological development as well as of economic development and also in socio-economic and political conditions play a particularly important role. The nature of the prevailing social system and particularly of the dominant form of ownership of means of production determines both the principal objectives for which the latest achievements of science and technology are utilised and the relative importance of particular methods and forms of their application.

To view the scientific and technological revolution exclusively in terms of its technical aspects independently of the relevant social context is therefore both erroneous and dangerous. In contrast to this a recognition of the dialectical unity and interdependence of the technical content and social conditions of the scientific and technological revolution draws attention both to progress in science and technology and to the fundamental transformations in the conditions and mode of production that it generates together with the need for corresponding changes in social structure.

It is therefore natural that despite its global character and despite the similarity of major forms and directions

that it assumes the revolution in science and technology proceeds in different ways in socialist countries and in capitalist countries. And it is already clear today that developing countries should not imitate the relevant achievements of industrial countries blindly but should rather adapt them to the contexts of their own social structures and their own economic, political and natural-climatic conditions.

The scientific and technological revolution has also greatly influenced the nature of international relations. More specifically, it intensifies these relations, and encourages the development of scientific and economic co-operation among different countries. In many cases multilateral co-operation becomes important, including that which takes place within the framework of international organisations. Beyond this it intensifies the need to effect radical changes in the currently existing system of international relations and to establish the full equality of all participating countries irrespective of their social structure and of their level of development. It also makes evident the need for a fundamental restructuring of the division of labour in the world capitalist system between industrial and developing countries that was originally established during the colonial period.

The scientific and technological revolution contributes to the creation of highly productive material and technical basis within the developing countries that is conducive to the reconstruction of the entire social structure and above all to the restriction and displacement of archaic forms of production.

Its course in such countries possesses a number of distinctive features. Above all, it is largely influenced by processes taking place in the industrialised countries, while the rate at which it proceeds is modest and its scope is highly constrained. It has yet to exert a major influence on the overall structure of production. The factors that impede its development include the low level of development of productive forces, the general scientific and technological and socio-economic backwardness of developing countries, their dependent position within the world capitalist economy, and specific natural and climatic conditions. In those cases, however, in which the achievements in the revolution in science and technology are in fact widely applied, they bring truly revolutionary changes in all areas of social life. As it

occurs in developing countries the revolution in science and technology produces a number of specific types of intense contradictions. Because technological innovations are often carried out at the initiative of international monopolies and of the governments of industrial capitalist countries they are not aimed at resolving major national tasks and frequently operate in opposite directions. In newly independent countries the scientific and technological revolution has developed unevenly and has influenced individual spheres of their economies in very different ways. Its influence has been greatest in sectors that are linked to the external world, that is, in export-oriented production activities established with the help of foreign capital (both state and private). Such production facilities continue to represent enclaves that are weakly related to the remaining economy. At the same time the achievements of modern technology are introduced very slowly into those production facilities that serve internal markets.

The planning process in such countries is being influenced by the scientific and technological revolution in at least three ways.

First, application of the results of progress in science and technology requires specific measures of state regulation and control and hence a definite measure of planning. This is reflected in a variety of state plans and programmes, including overall plans of national development. Second, the scientific and technological revolution contributes to extending the sphere of planning and to increasing its effectiveness. It is important, however, to understand correctly the nature of the general prerequisites and possibilities of state planning in developing countries. Finally, it is making possible substantial improvements in the techniques and methodology of state planning.

The need for state regulation of corresponding processes derives above all from their scope, which is generally nation-wide and in many cases international. For in most areas it is no longer possible to apply modern technological designs on the basis of private economic activities. Usually either a direct participation by the state or else its support is required. In particular large-scale capital investments into modern enterprises embodying advanced forms of science and technology and forming the basis of former colonies and dependent countries also require some measure of gov-

ernment participation. The overwhelming majority of such enterprises is set up and operated by the state sector and are either state enterprises or else mixed enterprises, while the creation and operation of similar enterprises in the private sector requires effective forms of state regulation.

Government participation is also needed in order to either overcome or at least reduce the negative influences that are associated with the scientific and technological revolution itself. In the case of developing countries this includes the uneven rates at which it proceeds, its relative lack of relevance to the solution of general national problems, and the insufficient scale on which it is applied. A report of the United Nations Committee for Development Planning concerned with the basic principles governing the Second Development Decade observes that "even at the present stage of development of the economically less advanced countries, the inadequate capability of applied science and technology has become a serious obstacle to further progress".*

Developing countries thus experience a need to go beyond a mere intensification of existing forms of state control and regulation over the processes related to the scientific and technological revolution. Increasingly they feel a need to develop and implement integrated national strategies in individual areas and to elaborate them in terms of state policies for applying science and technology in individual sectors. It is important that the state be able to guide the entire course of the scientific and technological revolution within a country. This requires its participation in decisions by large and medium-sized enterprises concerned with the technologies to be employed in production. All of this calls for appropriate methods and forms of state planning (cf. sections 2 and 3).

National strategies for applying the achievements in science and technology possess specific characteristics in each country that are determined by a diversity of aspects of both its internal and its external situation and by its natural and climatic conditions. In particular, the nature of the resources that are available to the country plays a major role as does the nature of the given country's long-term eco-

* *Towards Accelerated Development. Proposals for the Second United Nations Development Decade.* Report of the Committee for Development Planning, United Nations, New York, 1970, p. 20.

conomic policies. This refers to its natural resources, financial resources and production and labour resources, to the potential absorption capacity of internal markets, the nature of its participation in the international division of labour, its level of education and scientific knowledge, and to numerous other factors that determine the possibilities and directions in which the achievements of science and technology may be applied in both the productive and the non-productive spheres.

Newly independent countries are primarily interested in utilising the results of the scientific and technological revolution to solve their own major national problems such as the overcoming of economic and social backwardness and reducing their economic dependence on industrialised capitalist countries, reducing inequalities in the distribution of incomes and of wealth among various regions within the country and strata of the population, developing their agriculture, and reducing unemployment. This calls for complex approaches to the selection of technical instruments and methods for solving these problems, and for the establishment of priorities with regard to the particular spheres within which specific achievements of science and technology should be applied in each period of time.

Experience has already shown that even the most advanced and modern technical means may be unable to resolve urgent problems of newly independent countries when they are not supported by corresponding socio-economic transformations. This is illustrated by the failure of the so-called "green revolution" so far to bring any substantial or stable improvement in agricultural production. The success of application of the achievements in science and technology depends on the extent to which they are supplemented by an entire range of social, economic and political transformations.

It is desirable that government strategies for utilising the achievements in science and technology be merely a component element of more general national strategies of development at all levels, ranging from the formulation of general tasks and objectives of socio-economic progress to the design of individual projects within both the state and private sectors. It is important to apply a similar principle in planning, namely that measures directed at introducing the achievements of scientific and technological progress be reflected in

all sections of national plans. It is also important to prepare a summary section devoted specifically to the revolution in science and technology and describing in some detail the government's strategy in that area and its expected development with due regard for the specificity of the planned period.

The scientific and technological revolution in newly independent countries manifests itself in two basic forms, namely, through the utilisation of achievements of industrialised countries and also by their own research and development carrying out and applying their results in social and economic practice. In the first case it is possible to import foreign machinery and technologies, patents and licences directly and to subsequently organise their local application.

Three distinct groups of factors should be considered in taking the corresponding decisions:

- 1) magnitude of expenditures on the acquisition of patents and licences abroad and on adapting them to local conditions by comparison with expenditures associated with carrying out the corresponding activities in science and technology locally (with due account of expenditures on the establishment of the needed scientific and technical infrastructure;

- 2) time factors, which usually determine a direct reliance on the experience of other countries and importing equipment and scientific and technical designs developed abroad;

- 3) considerations bearing on achieving autonomy in the field of science and technology, that is, a recognition that a continued reliance on the experience of other countries tends to prolong the given country's backwardness and dependence and often produces new forms of economic dependence as well.

More generally this refers to choosing between a borrowing of existing achievements from industrialised countries and the autonomous development of science and technology with due regard for the specific needs and conditions of former colonies and dependent countries. This issue is aggravated by the fact that the more a country is backward the fewer are its own possibilities for both local activities in scientific and technical research and for receiving and applying foreign equipment and techniques. Accordingly, compromise variants appear to be the most appropriate ones. These represent specific adaptations of the technical, organisational

or economic results of scientific and technical progress to the conditions and possibilities of a developing country. Such adaptations, however, concern not so much the technical aspect of innovations which are relatively simple and self-evident as the finding of forms of adaptation that are appropriate to such specific aspects of local social and economic conditions as the types of available labour skills, the level of employment, traditions, customs, and above all the nature of the social objectives and problems of local development.

Generally, the actual level of local research and development in newly free countries lags far behind their needs, and national governments devote considerable efforts to overcoming such lags.

Planning activities concerned with the development of scientific and technical infrastructures constitute one of the major directions of state planning. They include the design of programmes that take into account both the specific characteristics of socio-economic development at given stages and the ability of the given country to assign the necessary material resources and manpower. In this connection the early creation of an effective national information system is particularly important. It is important not to dissipate the resources that are assigned for research activities. In particular, in the presence of limited resources it would be an impermissible luxury to merely assign them to "general research activities" merely for the sake of the country's overall prestige. Instead all relevant factors should be considered in determining the major directions of the country's economic development, the type of needs that may arise, and the manner in which locally-based scientific research may provide support for the corresponding economic activities.

It is particularly important to define correctly desired proportions between expenditures on fundamental research and on applied research. For there exists no universal solutions in this respect that are valid for all countries and all stages of their development. Initially, and particularly in the case of less developed countries, it is advisable to concentrate resources and personnel on selected forms of applied research. Within a long-term strategic perspective, however, it is impossible to ignore the importance of creating a local scientific and technological infrastructure able to con-

tribute to the continued scientific and technological revolution. It is only with the help of such an infrastructure that it may be possible to provide for a goal-oriented development of research activities that correspond to each country's specific needs and are subordinated to its tasks in the economic and social spheres.

Aside from providing the equipment, finances and organisational means that are needed for solving urgent problems in all spheres of social life and in all sectors of the economy, state planning activities related to the development of science and technology must also contribute to the evaluation of major areas of future development, with due consideration of possible changes in both internal and external conditions, including those that may result from the development of science and technology in other countries.

The scientific and technological revolution has already produced a need to alter a number of established economic proportions and to search for new solutions in the sphere of investment policy. This includes proportions between light and heavy industry, between extractive industries and processing industries, between industry and agriculture, and between the so-called import-substituting and exporting sectors of production. Genuine possibilities have now appeared for a fundamental alteration of the role of developing countries in the international division of labour and for their achieving a full and genuine equality in international relations.

The general course of the scientific and technological revolution is influenced increasingly by corresponding forms of international co-operation. At the same time, it itself contributes to processes that extend still further the internationalisation of economic relations and economic links among countries, and creates trends towards the international regulation of certain aspects of economic activity. In particular, the natural resources of developing countries are now more closely involved into a global economic process. This creates a greater need for both a national, and partly an international, regulation of the utilisation of these resources, particularly in the case of non-renewable and rapidly depletable resources. Such forms of regulation are made especially important by influences of the scientific and technological revolution on the world's demand for many types of raw materials that are sometimes catastrophic for newly

independent exporting countries. Today, such developments are being transformed into an international problem whose resolution requires corresponding goal-oriented forms of international co-operation.

The scientific and technological revolution influences economic planning in a diversity of ways. By increasing the possibilities for planning it defines new requirements with regard to its theory as well as its methodology and techniques. It also leads to the development of new means and methods for developing various plans and programmes. In particular, scientific and technological progress has led to improvements in the methods employed for the operational elaboration of various plans and programmes of socio-economic development. Above all, this refers to the utilisation of computers and also newly developed methods of mathematical analysis and of modelling economies, including the solution of extremal problems. This has made it possible to carry out an entire range of complex planning calculations representing both the macro-economic and the sectoral levels of economies.

While the development of state planning in developing countries continues to confront a wide diversity of limitations, problems and difficulties, the availability of modern calculation methods in planning has made possible more comprehensive analyses of the current state of their economies and more reliable estimates of possible trends and perspectives for their future development.

Comprehensive and goal-oriented applications of the achievements of science and technology guided by the objectives of plans with due account of concrete situations and available resources, offer important means for overcoming the social and economic problems that developing countries confront and make it possible to accelerate the rate of their economic development as well as to enhance their success in achieving genuine economic independence.

2. THE METHODOLOGY OF PLANNING IN DEVELOPING COUNTRIES

2.1. THE CURRENT STATE OF PLANNING IN DEVELOPING COUNTRIES

The initial attempts of new national states to solve their economic and social problems through the development of a diversity of economic programmes and through the introduction of elements of planning into the development of their national economies occurred many decades ago. They occurred in Mexico (1928), Iraq (1931), and especially in India, where the first national plan was developed in 1943 and the first National Planning Commission was set up in 1948 at the initiative of Jawaharlal Nehru.

Because of the undeveloped character of the state sector at that time, the important role of foreign capital in their economies, and many other factors the effectiveness of these attempts was quite limited.

As they achieve political independence all developing countries encounter the need to choose a way to overcome the consequences of colonialism and of their economic and social backwardness.

Gradually the leaders and the statesmen of a growing number of developing countries have come to the conclusion that in the presence of multiple-formation economies and of continuing economic dependence a policy of "laissez-faire" does not contribute to the solution of the complex economic and social problems that their countries face. And in practice the role of the state in economic life has been increasing in all developing countries irrespective of their socio-economic orientation. The growing influence of the state on all aspects of reproduction is expressed both through direct economic activities and through a greater reliance on regulation and control. At the same time the number of

countries in which the planning principle is employed in developing their economies continues to increase.

In 1960 various forms of planning were employed in 23 countries of Asia, Africa, and Latin America, and in 1966 the number of such countries exceeded 60. Today the majority of developing countries have accumulated certain experience in the sphere of national planning.

In many cases no attempts were made at first to influence the entire course of reproduction through planning, nor even all investment activities, while the planning of production activities was not even discussed. Usually plans encompassed a particular sector of the economy, or else a group of sectors that were believed to possess strategic importance for bringing about economic growth. But even then this referred to partial plans in which the principal or sole element of planning was the participation of state capital investments in the development of a particular part of the economy, to be financed from either the general budget or else from special budgets. As a rule such plans related to the financing of particular objects of economic or social infrastructures (plans in education generally belong to the first category), to the creation of a state sector in industry, the assignment of subsidies to agriculture, and in some cases to the creation of a state sector in agriculture as well.

Because these partial plans were not co-ordinated with each other within the context of a general model, and originated merely from the developmental needs of individual sectors without consideration of the capacities of other sectors, in nearly all cases their execution was accompanied by great difficulties.

In certain countries, and in particular in some of the Arab states, comprehensive forms of national economic planning were envisaged that were expected to rapidly create a basis for development. In practice, however, while such planning was called comprehensive, it referred to the development of investment programmes together with a number of partial plans that were not made internally consistent. Nor were their material and financial resources made mutually consistent. On the whole, such forms of planning represented attempts to rely on theories of regulated capitalism in order to find a way to combine planning influences originating in the state with the operation of autonomous market mechanisms.

It may be observed that most developing countries are continuing to search for forms and methods of planning that correspond to their specific conditions. Frequently, moreover, the significance of particular local traits is in fact exaggerated at the expense of general methodological principles of planning.

Attempts have been made by some of the more developed newly independent countries in which economic information is better organised, as for example, India, or some of the Latin American countries, to apply the methods of macro-economic modelling and particularly of linear programming and input-output tables. Frequently simple models of growth that reflect actual processes only in terms of approximations constitute a point of departure for the formulation of planned objectives and the mutual co-ordination of planned decisions.

The national plans that are employed or drawn up in developing countries may be divided into two basic groups, namely, long-term programmes encompassing 10 or more years, and so-called plans of development that are usually medium-term plans encompassing 4 to 7 years and sometimes only 2 to 3 years.

Long-term programmes usually contain formulations of general objectives of state economic policy as well as selected macro-economic indicators, such as the proposed volume or rate of growth in gross national product or national income and changes in the structure of the national economy. Such macro-economic indicators, moreover, are based on forecasting data.

The socio-economic tasks associated with medium-term plans are usually more specific. They include 1) increases in income or overall product, either as aggregates or in per capita terms; 2) the achievement of specific changes in the structure of the national economy; 3) increases in personal incomes and in consumption; 4) reductions in the existing differences in the levels of incomes of specific groups of the population; 5) increases in employment and reduction in unemployment.

In many cases, more specific problems are mentioned as well, such as, for example, problems concerning external trade and the balance of payments, education and the training of personnel, and volumes of output of individual types of industrial and agricultural production.

In spite of a great diversity in the extent to which plans encompass individual spheres of the national economy, in the extent to which they are elaborated, and in other respects, most national plans that have been prepared in developing countries in recent years contain the following major elements:

✓ 1) macro-economic indicators that are formally defined as planned objectives, but in fact represent forecasts and reflect rates of growth and changes in the sectoral structure of the economy as well as the distribution of output (income) in terms of consumption and accumulation;

2) programmes of capital investment within the state sector (these are usually subdivided in terms of capital investments in individual sectors and spheres of the economy and again in terms of major projects, as well as in terms of a comprehensive listing of sources of financing); and an estimated programme of capital investments in the private sector;

3) a more or less wide range of physical indicators and also value indicators, that do not usually extend to all basic sectors of the economy. They are intended to describe the desired or expected volumes of output of major types of product (sometimes of their consumption), the development of economic and social infrastructures and the volume of services that they make available (e.g. irrigated lands, the number of students, the number of hospital beds) and sometimes the development of the sphere of circulation (particularly external trade);

4) a programme of instruments of economic policy (seldom expressed in concrete terms) that the state proposes to employ during the planned period in order to regulate individual aspects of economic life.

Most developing countries, particularly on the African continent, do not possess sufficient experience in socio-economic planning, and in many of them there are still no trained planners able to formulate general national economic plans. An additional difficulty in meeting this problem concerns the insufficiency of reliable and representative statistical information in nearly all developing countries and the insufficiency of available knowledge concerning the potential capacities of their economies.

At the same time it should be added that it is not so much these factors that determine the shortcomings in planning

that are typical for the majority of developing countries and that reduce the effectiveness of objectively existing possibilities for introducing planning principles into their socio-economic development.

In most developing countries, even those that have acquired certain experience in developing and carrying out national economic plans, the planning methodology that is employed is inadequate in a number of respects that derive from an insufficient consideration of general principles that govern the process of reproduction and mode of development of the socio-economic structures existing in their countries, and of the corresponding actual possibilities and influences of planning with regard to socio-economic development.

One may define the first group of such shortcomings as a fetishisation of plans. Its essence lies in assuming that any objective or indicator embodied in a plan as automatically feasible, irrespective of whether it does belong to these elements and aspects of reproduction that are in fact influenced by the state, or those that develop autonomously but may in fact be regulated by the state, or those that develop autonomously and are practically not subject to regulation by the state. It ignores, in short, distinctions between elements that lend themselves to planning, elements that may be included in goal-oriented forecasts, and elements that may only be forecasted.

Such a fetishisation of plans usually leads to an underestimation of the role of a country's economic and social basis for planning and for measures of state economic policy directed at the execution of plans. It encourages a mistaken approach to the evaluation of plan implementation and often encourages a loss of faith in the effectiveness of economic planning in developing countries.

The second group of shortcomings is associated with a disregard of the unity of all elements and aspects of the process of social reproduction (cf. 2.3). This usually first expresses itself in a failure of the plan and of its objectives and indicators to reflect the development and the future state of the economy in a sufficiently comprehensive manner, and to consider the basic interdependences and mutual influences that determine the actual course of reproduction, and secondly, in a failure in most cases to ensure an internal consistency and balancing of plans.

2.2. THE METHODOLOGICAL DEMANDS ON PLANNING

2.2.1. The Unity of the Reproduction Process as a Basis for Planning

The process of reproduction under any socio-economic conditions possesses specific characteristics which must be taken into consideration when that process is planned. Ignoring such objective laws of behaviour in the developing and implementation of plans reduces their effectiveness and in certain circumstances may transform planning itself from an effective instrument for overcoming the difficulties that are to be met in developing economies into a factor that creates new impediments to this development. This danger is particularly great in those developing countries in which the operation of autonomous factors in regulating production activities based on multiple formation is weak and in which immense difficulties arise in overcoming elements of backwardness. In spite of the presence of multiple formations within the economies of developing countries the process of reproduction does integrate and link all spheres and elements of the economy with each other as well as all strata and groups of the population, even though this may occur in varying degrees.

In developing countries reproduction constitutes a social process, that is characterised by three major traits.

First, social reproduction represents a unity of all three of its stages, namely the *production of material goods, their realisation* (distribution and exchange) and their *consumption* (productive and personal). Outside these three stages, a normal process of reproduction is inconceivable. Both the overall social product and any of its component parts, as well as any output resulting from a process of production must be realised by the producers (excluding cases of internal consumption), and must find consumers. It is precisely as a result of the consumption of all parts of the overall social product, of its utilisation for personal and social consumption as well as for current productive consumption and accumulation (with due account of external relations) that the process of further reproduction is assured.

A strict quantitative interdependence exists, moreover, between individual parts of the social product and individ-

ual spheres of its utilisation. The nature of that interdependence was first shown in the well-known schemes of reproduction developed by Karl Marx in his *Capital* (Volume II, Part III, "The Reproduction and Circulation of the Aggregate Social Capital"). It was subsequently elaborated further by Lenin in his work entitled "On the So-called Market Question".* In particular, K. Marx was first to show that the value of the output of the Second Division of social production (the production of means of consumption) must be equal to that part of the newly created value (national income) that is employed for personal consumption, while the sum of the output of the First Division (the production of the means of production) must cover the needs of both replacement and accumulation of means of production in the First as well as in the Second Divisions. Beyond this he demonstrated that the realisation of the social product requires that the part of newly created value in the First Division that is assigned to consumption must be equivalent to the need for means of production in the Second Division.

In examining quantitative interrelations among individual parts of the social product and spheres of its utilisation, Karl Marx abstracted from the influence of changes in external trade and changes in the level of accumulated stocks on the volume of resources available to society and the level of consumption. Nevertheless K. Marx's analysis of interdependences between individual parts of the produced social product and its consumption identifies the objective principles that govern the reproduction process. These constitute the basis of all balance relations employed in economic analysis, including such major methods for analysing the proportions of reproduction as intersectoral balances and "input-output" tables.

In the case of market economies, proportions among individual parts of the aggregate social product are established through the operation of autonomous mechanisms. This includes proportions between means of production and means of consumption, as well as in the output of specific types of means of production. In such economies, moreover, the establishment of proportion in production is made pos-

* Karl Marx, *Capital*, Vol. II, Moscow, 1975, p. 355; V. I. Lenin, *Collected Works*, Vol. 1, p. 75.

sible only as a result of the passing of each part of the social product through all the stages of reproduction (production, exchange and distribution, and consumption) when in the process of market relations (in the course of realisation) a certain relationship is established between demand and supply for each product made.

Important conclusions bearing on the methodology of planning follow from the unity of the three stages of the process of social reproduction. *In one way or another, i.e. either in the form of planning proper or as a forecast of individual elements of reproduction, planning must encompass all stages of the reproduction process. In formulating plans a mutual consistency of planned tasks and indicators in relation to production, realisation and consumption must be assured.*

The nature of the mutual interdependence between production and consumption activities within the reproduction of the social product over a specified time period may be represented in terms of the following familiar scheme:

<i>Resources (production)</i>	<i>Utilisation (consumption)</i>
1. Production of commodities and services	1. Personal consumption
2. Accumulated stocks (outcomes in production in the preceding period that have not been utilised)	2. Social consumption
3. Imports of commodities and services	3. Productive consumption (so-called intermediate or else current consumption within the given period)
	4. Investment consumption (accumulation)
	5. Reserves (for utilisation in the subsequent period)
	6. Exports of commodities and services
Total resources	Total utilisation

A linkage between production and consumption activities is effected in the course of realisation (that is, distribution and exchange) that results from mutual influences

among numerous acts of exchange and of purchases and sales.

This scheme, however, refers only to the most general types of interdependence between produced commodities and services and their consumption. It does not reflect even a thousandth part of the complex interdependences that are present in an actual process of reproduction. Such linkages are considered most fully through the use of such instruments of economic analysis and planning as intersectoral balances. But they, too, cannot encompass fully all proportions and mutual relations of an actual reproduction process. For example, investment consumption (accumulation) is usually represented through a single column in most tables of intersectoral balances, or at most two (namely state investment consumption and private investment consumption). Yet from the point of view of developing an economy and its planning it is very important to know precisely how investment consumption is distributed among its individual divisions and sectors. For this will determine the future structure of the economy. It is also necessary to identify for the period under consideration a particular composition of production and of imports of the corresponding material carriers of basic capital.

Even a general analysis of the principal balance relations between production (resources) and consumption (utilisation) shows that it is impossible in the case of developing countries to plan all proportions within production and consumption and to exclude fully the influence of autonomous factors. It has already been noted that this is because a substantial part of output originates entirely in enterprises, including enterprises owned by foreign capital, and also with widely scattered small-scale commodity producers, and also because many elements of consumption do not lend themselves to direct planning. This is true, for example, of the material composition of personal consumption, of the volume and composition of output produced by small-scale producers, and of their demand for production inputs (both operating and investment-oriented) as well as of a number of other elements of production and consumption.*

* It is also true of the natural forms of production. Natural production, however, may be excluded altogether from an analysis of **reproduction** relations, since (autarchy with regard to inputs and

And that is the reason why the planning process in developing countries depends in large measure on economic forecasting as well as on the application of a diversity of measures of economic policy encompassing all stages of the process of reproduction that stimulate their development in directions desired by the plan.

A *second characteristic* of social reproduction concerns the fact that in the presence of *commodity-money relations* the process of reproduction takes place simultaneously both in a natural-material and in a value form. Accordingly the planning process must provide for a mutual linkage and co-ordination both in a natural-material form and in a value form between all three stages through which the social product passes in the process of reproduction.

These two objectively inherent traits of social reproduction, namely, the division of the process of reproduction into stages and its simultaneous manifestation in natural-material and value forms produce two important methodological problems of planning. In the case of developing countries their solution requires that all the specific traits of their economic structures be taken into account and that the objective prerequisites for planning be present.

The first group of problems concerns the selection of means and methods for assuring the internal consistency of plans that take into account all, or nearly all types of interdependence that are objectively inherent in the process of reproduction. Aside from being theoretically sound these methods must also reflect both the specific tasks facing planning activities and the actual possibilities for ensuring an internal consistency of planned decisions.

Even in relatively small countries with relatively underdeveloped economies, the actual number of interrelations associated with reproduction is, of course, extremely large. In particular, if one considers the so-called macro-economic level alone, that is, the level of the overall economy, the following major interrelations and macro-economic proportions may be identified:

—the ratio of means of production to means of consumption within the gross social product;

internal consumption) it is not dependent on other sectors by its very nature, while it is also internally balanced, as it were, in the sense that it refers to nearly closed reproduction cycles.

- the distribution of national income between consumption and accumulation;
- the division of production of means of production into intermediate and final outputs;
- the ratio of accumulation to rates of economic growth;
- the distribution of capital investments between the productive and non-productive spheres.

These major relations do not reflect the interdependence that exists among individual sectors of the economy, including the relations between the state sector and the private sector, between the foreign private sector and the national private sector, and between private capitalist production and that of small-scale commodity producers. Nor do they reflect proportions relating to the output of individual types of products, the interrelations that exist between their output and consumption, and the ratio of existing production capacities for particular types of output to the need for such capacities. If one also considers that thousands of types of output are produced in each country by many tens and hundreds of commodity producers, it becomes evident that the task of reflecting within plans all the requirements of consistency in relation to all natural-material and value interrelations is in fact an impossible task.

Instead, *a listing of the most important proportions and interrelations of the reproduction process must be defined in the course of planning; these are inferred from the general direction, objectives and indicators of the plan without whose attainment the plan will not be fulfilled. Those instruments of economic analysis able to provide for the internal consistency of plans that are optimal for given concrete situations must thus be defined.* In doing this it should be kept in mind that in the case of developing countries an important, and in some cases a major, part of the data describing individual aspects of reproduction during a planned period may be expressed only in the form of forecasts. Only a general survey of instruments associated with the development of plans has been presented in this section. Its scope has been largely defined by the methodological requirements of planning in conditions that are representative of those of most developing countries.

A variety of methods exists for analysing the process of social reproduction (both in its static aspects and in

its dynamics) and for co-ordinating planned decisions that may be applied in practice. They represent techniques for constructing balances, or else economico-mathematical methods designed to simulate both currently occurring and future processes and interrelations associated with social reproduction with varying degrees of accuracy (depending on the complexity of actual processes and on the availability of information).

Without pausing to consider all methods of economic modelling that are in fact applied in developing countries, let us merely note certain aspects of these methods that bear directly on a capacity to assure the internal consistency of plans. Above all let us note that in practice most of them describe only the "uppermost" macro-economic level of economies together with a small number of intersectoral proportions.

The most comprehensive and developed forms of balance relations are provided by national accounting systems, "input-output" tables, and intersectoral balances expressed in value terms. In theory intersectoral balances in value terms and national accounts provide a sufficient basis for analysing processes of reproduction in their value form.* In practice, however, their application to the planning activities of developing countries is relatively limited. This is largely explained by the difficulties of obtaining the relatively accurate information that both intersectoral balances and systems of national accounts require.

Because of the absence of initial information, intersectoral balances may be constructed only for a limited number of aggregated sectors and thus encompass only some macro-economic relations. This serves to deprive them of

* Aside from the manner in which they are constructed, these methods differ in the following respect: inter-sectoral balances (or balances of the "input-output" type) describe the volumes, structure and sources of so-called intermediate consumption (i.e. the current consumption of raw materials, other materials and energy by individual sectors of the economy) in far greater detail than do national accounts; while national accounts provide answers only to questions concerning the value aspects of corresponding categories. For their part, detailed national accounting systems describe a number of balance relations that are not reflected in intersectoral balances (for example balances of incomes and expenditures of individual sectors of the economy and balances relating to personal incomes).

their main advantage, since they cease to describe the intersectoral aspects of the reproduction process, including intermediate consumption in sufficiently comprehensive ways.

The difficulties attaching to the construction of intersectoral balances for past periods become even greater when attempts are made to construct similar balances for purposes of planning. This is because in the case of developing countries the so-called technical coefficients that describe both intersectoral linkages relating to intermediate consumption and many other relations are made extremely unstable over time by the undeveloped nature of their economies. In many cases the construction of a single large enterprise may alter fundamentally all intersectoral proportions and the values of technological coefficients.

Similar problems arise in attempts to construct systems of national accounts. The corresponding balance relations assume that a unified system of national accounts is introduced at all economic levels, beginning with that of enterprises, and that the balance relations at the macro-economic level reflect a series of aggregations. Thus, in order to employ systems of national accounts for economic analysis and planning a unified accounting and reporting system is required. In the case of developing countries, however, the organisation of such a system is made impossible by the nature of their socio-economic structures, the absence of trained personnel and a number of other reasons.

As a result, whenever tables of national accounts are in fact constructed, this is done on the basis of insufficiently representative statistical samples and of expert estimates. This does, nevertheless, make it possible to describe some proportions at the macro-economic level. The overwhelming majority of economico-mathematical models employed and developed in newly free countries, except for those that are most complex (but these are not applied anywhere), are also limited to a description of the macro-economic level. Many of them essentially describe the same relations as do balance-oriented models, but do so in the form of mathematical equations or constraints.

In addition, national accounts, intersectoral balances expressed in value terms, and "input-output tables", as well as mathematical models, do not describe the reproduction

process in its natural-material form. Yet, as plans become more comprehensive in scope, and as a transition is effected from the design of programmes of capital investments to the elaboration of more comprehensive economic plans that also include indicators of the development of production for specific types of output, a need appears for making plans internally consistent in terms of natural-material indicators as well as in terms of value indicators, that is, to link production programmes with the requirements of the national economy. It would appear that a solution to this problem may be found by constructing natural balances for a limited number of major types of production (cf. 5.3).

The second group of problems produced by the objective characteristics of social reproduction is even more important for the methodology of planning in developing countries.

Aside from reflecting the proportions that characterise social reproduction, plans also actively influence them and are aimed at creating new proportions that are consciously defined by persons on the basis of economic laws and correspond to the objectives and the overall direction of state economic policy.

A number of important conclusions follow from this principle concerning the appropriate approach to planning. The development of plans is always based on an analysis of already existing proportions within the reproduction process. Their task is to establish desired and feasible changes in such proportions during the planned period (or else the creation of stable trends in the corresponding direction), to identify within the plan the particular economic measures that this requires, to identify new interrelations and interdependences, and to provide for the internal consistency of plans.

Since in the case of developing countries possessing multiple formations it is impossible to provide for a full responsiveness of the reproduction process to planning, and since planning in such cases provides for a certain combination of consciously determined and autonomous forms for establishing national economic proportions, the analysis of the effectiveness of plans acquires a particularly important role within the process of planning itself. This is also true of the formulation of the design of integrated sets of instruments of economic policy, of legislative and

administrative measures, and of other measures that weaken the influence of autonomous factors on the development of national economies.

Finally, there is a *third* specific feature of social reproduction that is also of considerable importance from the point of view of the methodological requirements of planning.

The process of expanded reproduction not only recreates, on a wider scale and on a more modern scientific and technological basis, the material conditions for the existence of society (its productive forces), but also social relations, namely, relations of ownership, exchange, and the distribution of incomes and material and spiritual wealth among individual strata and groups of the population. In that connection the relevant general principle concerns the point that the expanded reproduction of social relations always refers to the creation of prerequisites for the establishment of more progressive social relations providing for a higher level of the society's material conditions and facilitating a transformation of these social relations into dominant ones.

In this respect the reproduction process in many developing countries possesses a certain specific character. Because of a number of concrete historical circumstances the most backward formations within these countries continue to reproduce themselves over long periods of time, particularly in the absence of interference from the outside. These are often called "traditional" and are characterised by an extremely low productivity of labour, a minimal application of technology and modern methods of production, and a very low capacity for accumulation. Such formations include natural and semi-natural agricultural production, semi-feudal forms of production characterised by a low rate of market orientation, and small-scale urban commodity production. They also operate as factors that hinder the overcoming of backwardness.

Thus the requirements of economic development themselves require that planning should encompass both these aspects of reproduction, namely, the reproduction of material conditions of the existence of a society, and of relations among persons in the course of production or social relations, and that it should be aimed at reorganising the socio-economic structure of production. The need to plan the reproduction

of social relations follows from the socio-economic nature of the objectives of state policy that are reflected in the corresponding approaches to planning, and from the specific objectives of national plans concerning such problems as the organisation of national education, social security, and health services, increasing employment, and overcoming poverty and sharp inequalities in the distribution of incomes.

2.2.2. Combining Objective and Subjective Elements in the Formulation of Plans

We have already noted the need to consider objectively established proportions of social reproduction and the need to provide for an internal consistency of plans that reflects the principles governing the reproduction process in its commodity-money form.

An analysis shows that in spite of the general trends of social reproduction its major proportions may differ sharply even in countries that are either similar or else are close to each other in terms of the level of economic development and socio-economic structure.

Thus, for example, the share of the gross domestic product (GDP) that is assigned to capital investments is often substantially larger in many developing countries possessing

GDP per capita in 1975 (in dollars)	up to 200	200-400	400-800	Over 1000
Share of GDP employed for capital investments in 1973-1975 (in percentages)	Madagascar 13.5	Cameroon 11.6	Morocco 15.7	Brazil 22.6
	Pakistan 13.7	Sudan 14.2	Syria 21.9	Mexico 23.4
	India 15.8	ARE 16.2	Tunisia 25.7	Libya 29.0
	Indonesia 20.3	Nigeria 16.5	Zambia 35.7	Iran 30.0
	Tanzania 20.8	Kenya 20.1	Algeria 42.7	Kuwait 50.5
	Zaire 22.7	Phillipines 28.0		

Calculated on the basis of: OECD. *Development Co-operation Review*, 1976 pp. 270-271, U.N. *Monthly Bulletin of Statistics*, July 1977, pp. 193-199.

a relatively low level of development of production than it is in more developed countries. To a certain extent this may be inferred from the share GDP assigned to capital investments in individual countries. These have been grouped by us in term of GDP per capita per year.

The reason why there are such significant divergences in the distribution of income between consumption and accumulation and also in many other proportions of social reproduction is that they are influenced by a number of diverse economic, techno-economic and social and political factors. These include the country's natural and geographic conditions of production, scientific and technological progress, the initial level of development of productive forces, the nature of production relations, and the socio-political situation within a country, as well as many external factors whose influence may not always be established with certainty.

In planning it is therefore important to combine objectively determined decisions with a number of subjective decisions.

At the same time a partial reliance on subjective elements in planning should not lead to voluntarist decisions that ignore economic laws, reduce the scientific validity of plans, and disrupt their internal consistency. Nor should purely arbitrary decisions be taken, since these may lead to an irrational or else completely unjustified utilisation of available labour, material and financial resources.

A number of major methodological issues concerning approaches to the taking of planned decisions bear directly on this issue. The first group concerns the establishment of a number of fundamental or primary proportions within the reproduction process, while the second relates to the optimisation of planned decisions at all levels.

It has just been observed that some proportions within the reproduction process may not lend themselves to a precise determination and that they must then be selected through subjective decisions, at least at the present level of knowledge and information concerning the overall interaction of economic, social, scientific and technical, political and other factors on the process of reproduction. This includes a number of fundamental macro-economic proportions that represent primary proportions in the sense that they largely determine others.

Above all this refers to proportions between labour expenditures on a society's current needs and those that are expended on its future needs, that is, the distribution of national income between consumption (personal and social) and accumulation.

In particular, that proportion determines the rate of economic development, the growth in the productivity of social labour, changes in the population's standard of living, and the ratio of the output of means of production to that of consumer goods, and also many other economic indicators.

In formulating plans of economic development, however, especially long-term plans, planning bodies inevitably face the following issue: should emphasis be given to accumulation and hence high rates of economic growth, or to consumption, and hence to a more rapid rate of increase in the population's standard of living? While there does exist a relatively direct interdependence between these two aspects of reproduction, there does not exist a universal recipe for taking decisions in all concrete situations.

The analysis of relations inherent in reproduction casts light on the corresponding two extreme alternatives in economic development, namely, the one in which there is an orientation exclusively on consumption and that which emphasises accumulation.

An examination of the first of these two hypothetical alternatives indicates that a disruption of basic proportions of reproduction would occur relatively quickly in a society that would seek to assign all increments in national income to consumption. The absence of new capital investments (accumulation) in the production of means of production (the First Division) would make it necessary to redistribute basic and circulating capital from the First Division into the Second, since a continued exchange between them would become impossible without such a step, as would the meeting of the steadily increasing needs for consumer goods. The rate of economic development will therefore decline, as will the absolute increment in national income, and eventually this will result in a stagnation of production.

Similarly the second extreme alternative, namely the utilisation of the entire increment in national income for accumulation, will not yield desirable results. Since that alternative is based on maintaining a constant consump-

tion fund it does not require any expansion in the output of consumer goods (the Second Division). The entire increment in national income is assigned to capital investments in the production of producer goods. While such an approach to expanded reproduction does create potential capacities for the greatest possible rate of production, in fact it transforms such growth into a self-contained objective without any direct advantages for society. Increasing the share of accumulation in national income acquires a meaning only when this results in an increase in the rate of growth of national income and when prerequisites appear for a subsequent rapid increase in consumption.

In selecting a particular approach to the process of reproduction, it is also important to keep in mind a number of other general interrelations. In particular, in cases in which the objective is to increase increments in consumption up to a certain level, it is important to recognise that the share assigned to accumulation will be larger as the planned period increases; and conversely it will decline if it is intended to maximise consumption within a shorter period of time. As the effectiveness of investment (of accumulation) increases (i.e. as the ratio of increments in national income to accumulation increases), further increases in the share of accumulation expenditures become desirable. Similarly, in situations in which the effectiveness of expenditures on accumulation is sharply reduced it is no longer rational to increase accumulation at the expense of consumption.

Whatever the particular proportion that is selected, however, it is required that the consumption fund produced within the First Division be equal to the sum of means of production required by the Second Division (with due account of their exports and imports), and also that the social product produced in both divisions be realised.

In the case of most developing countries, however, the actual possibilities for emphasising one approach or the other are severely constrained.

On the one hand, it is evident that the upper limit for assigning increments in national income to accumulation is constrained by the rate of population growth, that is, by the need to maintain the level of consumption per capita. In many developing countries, moreover, the development of production is associated with a need to in-

crease employment. Increases in employment must therefore be greater than the increase in the number of able-bodied members of the population.

It is evident that redistributions of increments in national income to accumulation alter such proportions sharply. To illustrate this let us consider an imaginary example that nevertheless approximates the conditions that actually exist in many developing countries.

Let us assume that the current state of a country's economy is described in terms of the following indicators:

Current national income as a percentage of national income in base year	$N=1.0$
Share of national income assigned to accumulation	$n=0.1$
Share of national income assigned to consumption	$1-n=0.9$
Average yearly rate of growth of national income	$e=1.06$ (6 per cent)
Average yearly rate of growth of population	$p=1.02$ (2 per cent)

Assuming that the consumption fund grows at the same rate as does the population and that the effectiveness of accumulation is constant, the following proportions are obtained for $t = 5, 10$, and 20 years:

Periods of time (t years)	0	5	10	20
National income Ne^t	1.0	1.338	1.791	3.207
Share of national income assigned to consumption $N(1-n)p^t$	0.9	0.995	1.097	1.337
Share of national income assigned to accumulation $N[e^t-(1-n)p^t]$	0.1	0.343	0.694	1.870
Rate of accumulation $n = \frac{e^t-(1-n)p^t}{e^t}$	0.1	0.256	0.386	0.383

It may be seen that when national income increases at an average rate of 6 per cent per year while consumption increases at the same rate as does the population, namely, by 2 per cent each year, already after 5 years the rate of accumulation norm increases from 10 to 25 per cent of the national income, while after 10 years it increases to 39 per cent. Its subsequent increase leads rapidly (within the lifetime of a single generation) to a type of reproduction

in which an overwhelming emphasis is given to the production of means of production, that is, on production for production's sake.

In selecting an approach to reproduction over a prolonged period of time, accordingly, it is more appropriate to seek a stabilisation of the accumulation rate at a certain optimal level. Judging by the experience of most countries this appears to lie between one-fourth and one-third of the national income.

In considering the problem of assigning national income to accumulation and consumption we have neglected an important economic proportion, namely, the shape within the accumulation fund of expenditures on the development of the non-productive sphere—such as the construction of residential housing, schools, educational institutions, hospitals, cultural and scientific institutions, and other objects of social infrastructure. All these capital expenditures do contribute to the process of reproduction, since they are necessary to train the labour force and satisfy the material and spiritual needs of members of society. Yet their volume depends to a large extent on social and political conditions, and does not lend itself to a rigorous scientific determination.

It is in this sense that in the planning of proportions between accumulation and the non-productive spheres a rigorous identification of economic interdependence and requirements of reproduction itself is impossible, and such proportions are established in a subjective manner on the basis of social and political factors.

2.2.3. Considering the Effectiveness of Social Production in Arriving at Planned Decisions

Both the rate of economic growth and a number of other economic proportions, including the ratio of the output of means of production to that of consumer goods, i.e. the material-sectoral structure of production are largely determined by the proportions in which national income is assigned to consumption and to accumulation. Yet a particular ratio in assigning national income to consumption and accumulation may be compatible with different proportions between the First and Second divisions and with different sectoral and material structures within these divi-

sions, depending on the economic effectiveness of the basic proportions. In its turn the selection of a particular basic proportion of this type (either as a result of the operation of autonomous market mechanisms or as a result of planned decisions) will influence the manner in which the national income is utilised.

For example it is possible to obtain identical levels of output in planned agriculture from either large areas of land with low yields or else smaller areas of land with higher yields achieved through the use of chemical fertilisers, irrigation, and more intensive working of land. Naturally, different policies with regard to the basic proportions of production will produce different ratios between the volume of agricultural and industrial output. Similarly, the ratio of the First Division of social production to the Second one will vary. Beyond this one may, for example, construct residential housing and other buildings in ways that economise on the use of construction materials, but as a result expenditures on heating them will be larger at certain times of the year. Alternatively it may be possible to employ construction materials that do not dissipate heat and economise on fuel. The number of such possibilities is countless, and they all refer to the existence of a wide range of mutual substitutability not only among commodities intended to satisfy identical needs, (as for example, natural and artificial fibers), but also among commodities whose consumption properties are altogether different (for example, between fuels and construction materials, between grain, fertiliser, agricultural equipment, and the metals from which they are produced, and between cotton and the natural gas employed as one of the basic raw materials in producing synthetic fibres).

Identical social needs may thus be met through different commodities and services and therefore through different structures of social production. The revolution in science and technology substantially widens the number of such alternative variants of production, as does a country's participation in the international division of labour.

In short, the mutual substitutability of commodities possessing different consumption characteristics makes it possible to assure reproduction through different intersectoral, intrasectoral and material structures. This causes the process of reproduction to possess many variants. Clearly the

optimal variant among them will be the one that provides for the greatest effectiveness of that process for society.

For most developing countries, their governments and their planning administrative and economic agencies the problem concerning the most rational utilisation of available resources and possibilities in overcoming the problems of backwardness and concerning the selection of most effective planned decisions and optimal proportions of reproduction is becoming increasingly urgent.

Both theoretically and especially from a practical point of view, however, the problem of optimising reproduction is extremely complex. Given the present level of knowledge concerning the laws that govern the behaviour and interactions of the reproduction process, and given the quality of the available information concerning concrete economic processes in particular countries, it is possible to envisage only a certain approximation to optimal variants of reproduction by selecting those planned techno-economic solutions that are most effective for given conditions.

Allowing for a measure of simplification approaches to such decisions may generally be divided into three stages.

The first concerns decisions inferred from general tasks and based on available information. This makes it possible to formulate preliminary decisions without further verification and justification (by selecting them on the basis of the "criterion of self-evidence").

For example, the consumption of ferrous metals may be growing in a particular country while their domestic production is not yet organised; their importation requires substantial volumes of foreign exchange; and geological findings indicate that there exist important deposits of iron ore. Given these circumstances, a preliminary decision is taken to construct a metallurgical enterprise, and this is reflected in the national long-term plan.

The second stage concerns a qualitative analysis of the degree to which preliminary decisions are justified. As a result a variety of possible obstacles to the implementation of the original decision may be identified which derive from technical, economic, social and political considerations.

For example, the precise volume of ore deposits that is available may be established, as well as those of their qualitative characteristics that bear on the production of metal; deposits of other types of metallurgical raw materials

may be found within the country, or else possibility for importing them may be identified; and the extent to which the needed construction activities may require imports of equipment or of additional labour may be established. Beyond this the need to import coking coal may become apparent together with the need to construct the corresponding port and transportation facilities. Finally, it may become apparent that commercial and political considerations then call for terminating imports of rolled steel and that this may in turn create obstacles in marketing other export commodities.

The third stage concerns a quantitative analysis that makes it possible to express the initial decision in terms of specific indicators derived from techno-economic calculations and to establish its economic effectiveness. It is at this stage that alternative possible variants of the initial decision are considered and that the most advantageous one is selected.

In the case of the metallurgical plant the volume and schedule of production may be defined (with due consideration of the potential requirements of internal markets), as the volume of capital investments, the cost of production, the profitability of the enterprise, and other techno-economic indicators.

Naturally, such approaches to the selection of economic decisions differ when they are seen from the point of view of the private entrepreneur and that of the state, since the private entrepreneur is interested in the profit that he will receive for the capital that he advances and is accordingly concerned with only those conditions that are directly associated with the realisation of the particular project. The state, on the other hand, must be primarily concerned with the overall tasks of national development, and must consider all economic interrelations, as well as social, political and other conditions and consequences attaching to the realisation of a particular project.

In many cases both planning and techno-economic decisions are taken without adequate qualitative and quantitative studies, often merely on the basis of their general relevance in terms of the "self-evidence" criterion. This is explained by the absence of information needed for decisions, as well as of experience and of trained personnel. It is also explained by the objective difficulties of taking

decisions that consider all possible economic, social, political and other factors, particularly since the latter may not be reduced to a single measure. As a result, state resources are occasionally expended irrationally, and enterprises that are created turn out to possess a low economic efficiency and perhaps to require permanent subsidies.

Yet it is increasingly important that production be economically efficient. For both accumulation and higher levels of consumption depend on this. Planned and techno-economic decisions that are economically not justified and the implementation of large-scale capital projects that do not contribute to the overall growth of production efficiency lead to a reduction in the rate of economic growth.

The choice of planned and techno-economic decisions should therefore be based on both qualitative and quantitative studies that result in a selection of variants that are most effective from the economic point of view and hence lead to the establishment of as effective a general structure of production as possible.

In particular, without considering production efficiency it is impossible to solve the problem of relying on planning to establish required proportions of reproduction.

In the final analysis without considering real proportions within the reproduction process, and without identifying optimal (most effective) structures and proportions for the entire process of social reproduction it is impossible to provide for an internal consistency of plans.

2.2.4. Criteria of Economic Effectiveness

The problem of plan optimisation and selecting those planned decisions that are most effective from the economic point of view raises several important methodological issues. What are the criteria of economic effectiveness, and what are its indicators? What are the units in terms of which they should be measured?

In theory the answer to that problem may be formulated relatively clearly. The criterion of economic effectiveness is provided by the relation between the outcome of production and the expenditures required for achieving it.

The problem concerning the criteria of effectiveness in developing countries, however, is not yet fully resolved either theoretically or in terms of practical applications,

and has led to many discussions. What is at issue is not the identification of factors that state bodies should take into account in various concrete situations in decision-making, for these factors are known: they include the need for specific types of production, opportunities to meet it at home or abroad, the replacement of imported commodities through local production activities, the expansion of demand for the output of closely related sectors and also the emergence of other intersectoral linkages, the development of backward regions within a country, the growth in employment and in incomes, and increases in the rate of accumulation. It is impossible to neglect any of these factors in decision-making. What is at issue, however, is the nature of those criteria of economic effectiveness that would make it possible to compare individual planned and techno-economic decisions and to avoid decisions that lead to economically unjustified expenditures of labour and material and financial resources (and hence to narrower possibilities for developing the national economy) while identifying those most advantageous projects that would contribute to increasing the economic efficiency of overall social reproduction and in this way to its optimisation.

It is evident that a comparison of different economic factors and decision variants may be effected only on the basis of value indicators. It is desirable, moreover, that in the last analysis quantitative studies of selected decisions produce only one solution. Since the effectiveness of each concrete plan or techno-economic decision influences the efficiency of overall social production, the criteria that determine it must be the same for all economic levels, ranging from specific projects within individual enterprises to the macro-economic level. Finally, the criteria of economic effectiveness should take into account the specific features that characterise the economies of developing countries both in terms of the correct appraisal of their result and in terms of identifying the major factors that are in the way of attaining an outcome, i.e. the elements of expenditures that are most difficult to obtain (the most constraining factors of production).

In considering value factors associated with production some economists observe that in the case of developing countries prices do not reflect sufficiently the element of value.

In particular, the authors of the survey entitled "Industrial Planning", which is based on the proceedings of an International Symposium on Industrial Development (Athens, November-December 1967) have observed that in the case of developing countries "the equality of market prices with the actual social opportunity costs of inputs and outputs cannot be presumed".* Nevertheless they generally viewed with skepticism the suggestion made at that symposium concerning the possibility of applying so-called shadow prices to economic calculations in developing countries in order to "correct" such deviations between market prices and value.

Prices always deviate from value. In particular cases such deviations may become stable. They may be observed under any socio-economic conditions. The presence of stable deviations of commodity prices from value is explained by concrete historical, economic, social and political factors. In short, they are explained by objective factors.

Because of the objective nature of the basis for stable deviations of prices from values, it is our view that observed value categories may in fact serve as a basis for evaluating variants for economic decisions in developing countries. This does not mean, however, that in estimating the effectiveness of particular projects it is always possible to rely on currently operating prices. Such prices must be corrected through forecasting studies.

A fundamental question concerns the possibility of relying on value indicators as the sole basis for decision-making.

It has already been emphasised that in arriving at planned decisions and in selecting specific techno-economic indicators consideration should be given to all economic, social, political and other factors, to all advantageous and also negative aspects.

In this connection it is important to clarify two highly relevant considerations that are frequently neglected.

First, value indicators may serve as criteria only for selecting an economically optimal variant rather than a variant that is optimal from the point of view of the entire complex of social interests.

Second, even though indicators of economic effectiveness do not directly reflect considerations of a social, political,

* *Industrial Planning*, United Nations, New York, 1969, Vol. 17, pp. 38-39.

strategic, or so-called prestige character, in the final analysis all decisions based on such considerations influence economic effectiveness.

In many cases such relations may be indirect. In the case of developing countries it is difficult, for example, to identify the economic effectiveness of state expenditures on health, education, the training of administrative personnel, or of replacing slums by residential houses. Yet direct as well as indirect relations between these socio-economic activities of the government and the economic efficiency of production do exist, for any investments into a country's social infrastructure reduce the production sphere.

A reduction in the economic efficiency of social production may occur whenever social, political and other factors play a leading role in decision-making. In taking such decisions, accordingly, state bodies must consider the manner in which they will affect the economic efficiency of production and must select variants that are as economically effective as possible, while also meeting the social, political, and other requirements that are envisaged.

In arriving at any decisions that require financial, material and labour expenditures, the criterion of economic effectiveness should not work in opposition to social, political, and other similar considerations.

It should be observed that until now neither theoretical studies nor the practical experience of developing countries has produced a universal indicator of economic effectiveness that could simultaneously fully satisfy all the requirements that have been mentioned.

To identify the most constraining elements of expenditures in developing countries is a relatively simple matter. This concerns productive assets and the capital investments that they require. It is for this reason that most authors agree that in the case of developing countries the economic efficiency of production should be understood to refer to the effectiveness in utilising productive assets, or else the effectiveness of capital investments (depending on whether this refers to the efficiency of production already in existence or of future production).

The coefficient called ICOR (Incremental Capital Output Ratio) is used relatively widely in the planning practice of developing countries. With its help it is possible to identify the dependence of growth in Gross Domestic Product on

investments into the economy. It is also employed as a criterion for evaluating the economic effectiveness of individual projects.

To what extent can relation of the Capital-Output type or else of the Output-Capital type describe the economic effectiveness of capital investments?

The Gross Domestic Product (Pr) represents a sum of three basic indicators, namely, wages (W), depreciation (D), and profits (P). If we represent capital investments through C we will obtain the following formula:

$$\frac{\text{Output}}{\text{Capital}} = \frac{Pr}{C} = \frac{W + D + P}{C}$$

It may be seen that the capital-output coefficient does not give a single-valued characterisation of effectiveness of capital investments. It includes the sum of expenditures on depreciation (D) whose value depends on the depreciation period of the basic capital rather than on the scale of production.

A reliance on the ratio between Gross Domestic Product and capital investments as a criterion of economic effectiveness may lead to the selection of decisions that do not correspond to the tasks of economic development in developing countries, and in particular to decisions that do not ensure a growth of internal accumulation.

In justifying capital investments in industrial projects in developing countries, use is often made of a coefficient of capital investment that represents a ratio of gross (or else net) profits and depreciation expenditures to the sum of advanced capital. The use of such an approach in the economic practice of developing countries originates in the influence of foreign investors, particularly in extracting industries. Its significance from the point of view of foreign investors derives from its ability to determine how soon they will be able to recoup the advance capital through the cash flow represented by profits and depreciation expenditures.

The low level of national income per capita is one of the major manifestations of economic backwardness in developing countries. A rapid growth of national income is therefore a task that is envisaged by the plans of nearly all developing countries. Accordingly it would seem that the ratio of national income to capital is a particularly ap-

propriate criterion of effectiveness. In particular it reflects the shortage of capital as well as both basic elements defining the outcome of production for society (in their value form), namely the surplus product, on which the intensity of accumulation depends, and the necessary product, which defines the level of consumption of members of society.

Unfortunately, matters are not so simple. In particular, let us recall that the necessary product, which in national accounts is recorded in value form, is also an element of expenditures. For a given overall volume of capital investment decisions intended to increase the number of persons employed and hence to achieve a growth in the necessary product will inevitably reduce investment possibilities in other areas that might have created a larger surplus product. Thus, the ratio of national income to capital cannot serve as a criterion of the economic efficiency of production, and its use in arriving at decisions does not lead to unambiguous solutions.*

It is possible, nevertheless, to state a number of principles governing the development of productive expenditures that help to identify the criterion of economic efficiency of production.

In producing any item, the decline in wages that results from increases in the capital-intensity of labour is more rapid than are increases in total expenditures on the creation of equipment. Usually, however, a threshold exists beyond which additional capital investments no longer produce

* Because the efficiency of production is determined by the ratio of the outcome of production activities to expenditures of labour, it would be clearly appropriate to measure and to compare the national income generated as a result of production in its natural-material form (i.e. as the necessary product and the surplus product), with total expenditures of live and embodied labour (embodied in production assets), again expressed in natural form (for example, in terms of man-hours). At the present time, however, such an approach is unacceptable for lack of methods for comparing the outcomes of production which are recorded in terms of the most diverse use values, irrespective of their exchange values, and also because of difficulties in reducing to a common measure expenditures of individual labour (live and embodied) of different intensities and skills. On the other hand, a comparison of national income with expenditures of live and embodied labour in their value form makes evident the dualism of these two aspects of social production, which derives from the fact that wage payments appear simultaneously both as a part of the national income (the outcome) and as an indicator employed to define expenditures of live labour.

visible reductions in expenditures of live labour, and may even increase them. Total expenditures on raw materials, other materials and energy do not experience significant changes. In most cases increases in the capital-intensity of labour reduce expenditures of major types of raw materials but increase expenditures on energy and on various auxiliary materials. As a result of all these factors, total expenditures on unit output initially decline, as the value of production assets increases, but then again begin to grow.

The ratio of profits to advanced capital (i.e. the rate of profit, or else the coefficient of effectiveness of production assets usually reaches a maximum given a lower capital-intensity of labour. This results in a minimum of total production expenditures and, hence, maximises the amount of profits.

The corresponding relationships are represented in Figure 1 and in Figure 2.

Figure 1 represents changes in total expenditures on production. This includes the unit costs of production (C) as a function of capital investments into production assets (I). It also represents expenditures for raw materials and other materials (Rm), expenditures on labour (Cl) and on the depreciation of basic assets (D).*

The vertical segment between the line describing the price level of output (Pc_o) and the curve describing costs of production (C) represents the magnitude of profits (P).

Figure 2 is derived from Figure 1. It describes the principles that govern changes in the rate of profit $\left(\frac{P}{I}\right)$ and in the ratio of labour expenditures to capital $\left(\frac{Cl}{I}\right)$ for production variants that differ in their capital-intensity. The broken line describes changes in the ratio of national income to capital $\left(\frac{Cl+P}{I}\right)$.

Figure 2 clearly shows that a reliance on the national income-capital ratio as a criterion of economic effectiveness, i.e. on a striving to achieve the greatest possible national income, may result in the selection of production variants that produce no accumulation.

* It is assumed that expenditures on raw materials and other materials remain constant for all production variants, and that the rate of depreciation does not change with the capital-intensity of labour.

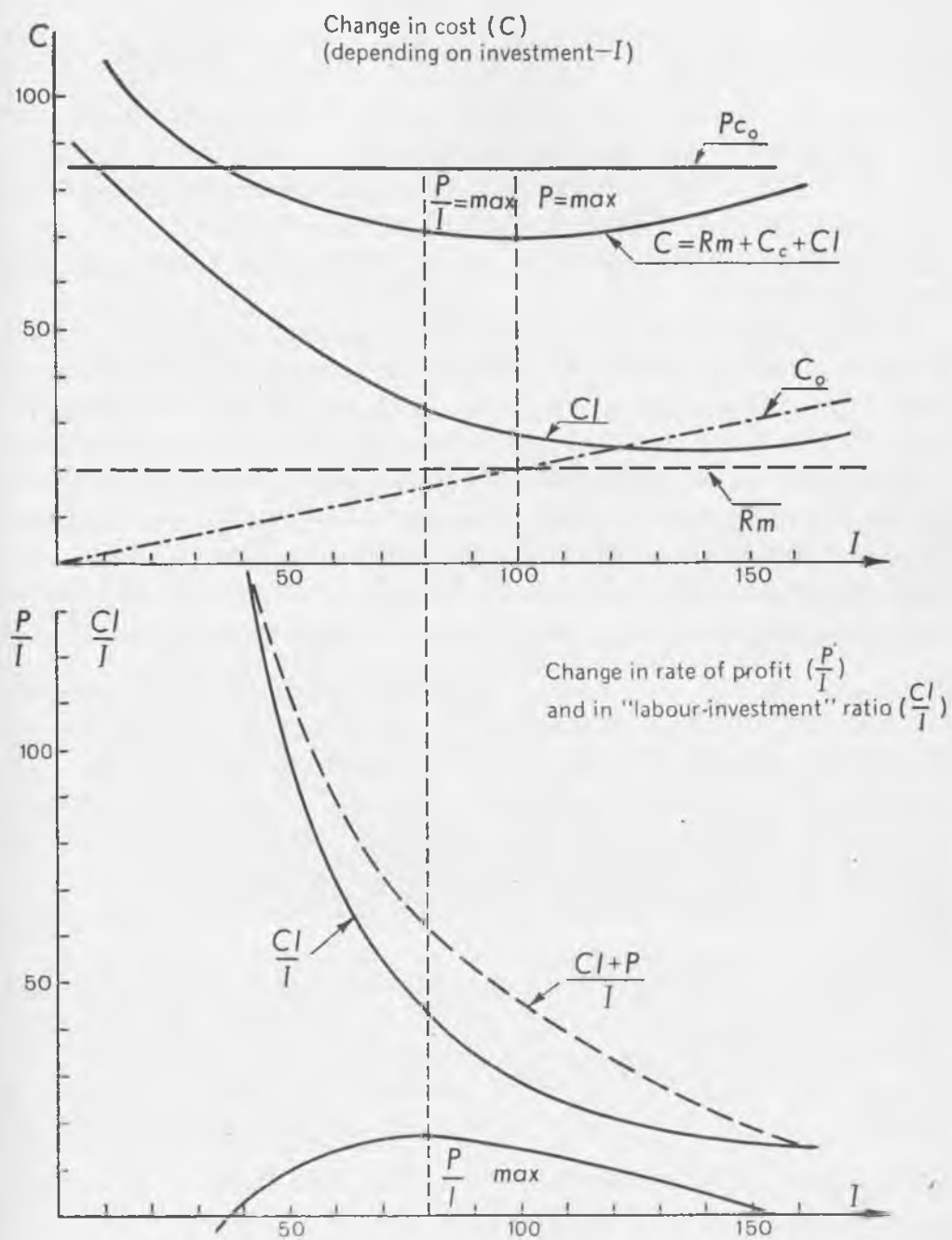


Fig. 1. Change in cost (C)
(depending on investment— I)

Fig. 2. Change in rate of profit (P)
and in labour-investment ratio

Decisions leading to the greatest rate of profit $\left(\frac{P}{I}\right)$ are clearly the most desirable ones. Naturally, unlike in the case of private entrepreneurs, the state will have to compare the advanced capital not only with that part of profits that is represented by entrepreneurial revenues, but with all macro-economic profits as a value equivalent of the surplus product.

Such decisions will contribute to a maximisation of the surplus product produced within the country, and thus of internal accumulation as well, that is, to the solution of one of the fundamental problems of developing countries.

The ratio of surplus product to capital attains a maximal value for a specific level of capital-intensity of labour which depends on the ratio of wages to the value of capital goods. When the price of labour declines and the value of capital goods is relatively high the maximal ratio $\left(\frac{P}{I}\right)$ is achieved with a lower capital-intensity of labour. It follows that a transfer to developing countries of technical decisions that are economically effective in industrial countries (where labour is "more expensive" and capital goods are "cheaper" than in developing countries) will automatically result in unjustified expenditures of capital and in an underutilisation of labour resources.

Analysis of corresponding relations also shows that as the differences between the prices of products for the final consumer and the costs of production and circulation increase, the ratio of surplus product to capital attains a maximal value for lower levels of capital-intensity of labour, i.e. as prices of output increase, the point $\frac{P}{I} = \max$ shifts to the left (cf. Figure 1).

It also follows that given equal production costs and higher prices in developing states than in industrial countries (especially for many types of output of processing industries), a simple copying of technical decisions appropriate for industrial countries will also result in an overexpenditure of capital and an underutilisation of labour resources.

These considerations make it possible to arrive at certain conclusions concerning the technological policies of developing countries. In many of them a certain conviction has developed that whenever new enterprises are established it

is always best to rely on the most modern equipment employed in industrial countries. It is thought that such an approach contributes to an overcoming of the backwardness of developing countries and assures a capacity for new products to compete successfully.

In fact, however, the concept of "modern equipment" possesses a specific economic as well as a technical content. The application in developing countries of the types of modern equipment that are employed in industrial countries can easily lead to extensive expenditures of capital, a reduction of possibilities to increase employment, and may lead to increases in production costs.

In many developing countries decisions based on a maximisation of the ratio of surplus product to capital (i.e. on the maximisation of the rate of profit) operates in such a way as to partly oppose a rapid solution to another very important economic and social problem of developing countries, namely that of increasing employment.

A practical way out of this situation does exist. For in most cases the nature of changes in the rate of profit (as may be seen in Figure 2) are such that for slight reductions in capital investments (according to our estimates this would lie within the range of 10-12 per cent) the rate of profit or the ratio of surplus product to capital changes very little.

This makes it possible to increase substantially the number of persons employed in the economy without effecting a major reduction in the volume of accumulation. But when it is possible to engage additional numbers of persons into the production sphere (through a reduction in the capital-intensity of labour) while paying them somewhat lower rates (so as to compensate for a reduction in the capital-intensity and productivity of labour), this may produce a substantial economic effect. First, it may lead to a continuation of the high rate and volume of profit, and therefore to a continued internal accumulation. Second, it will lead to an additional growth in employment, and hence in that part of the national income that is assigned for consumption (the labour-capital ratio $\frac{Cl}{I}$ is increased).

In discussing such an approach to decisions we had in mind its application with due consideration of both its advantages and its shortcomings, and of the fact that some

reasonable increase in the labour-capital ratio may simultaneously make it possible to:

a) increase the overall volume of goods and services produced;

b) engage additional numbers of unemployed population in production, thus increasing personal income;

c) given a reasonable policy with regard to the wages of the additional labour, to maintain at a constant, rather than optimal, level the production costs and the volume of surplus product.

In view of the existence of unemployed labour resources, moreover, it is appropriate to accept a minimal level of mechanisation of labour in carrying out many national economic projects, thus engaging additional labour resources into the sphere of material production. Such an approach may be employed in carrying out earthwork, road-building, hydroengineering development and irrigation systems, in activities seeking to prevent soil erosion, and in other activities in which unskilled labour without professional training may be employed. As a provisional measure envisaging a partial payment of investments in the form of labour it is possible for the state to pay for its labour at minimal rates. At the same time, unlike in the case in which there is a high level of mechanisation of labour (such a tendency is clearly evident in many developing countries, particularly in projects developed by Western specialists) not only will there be a reduction in expenditures on capital goods, but possibly in total expenditures as well, while total personal incomes will be higher.

Thus with regard to the economic effectiveness of investments the following guidelines may be recommended:

1. Basically rely on the rate of profit, that is the ratio of surplus product to capital in its value form— $\frac{P}{I}$ where P —is the value of the realised surplus profit and I —is the total volume of capital goods, both basic and circulating.

2. In comparing two or more variants for producing goods and services, select the one that provides for the greatest rate of profit. Those projects whose realisation produces a higher rate of profit (all other things being equal) must be given priority from the point of view of financing and scheduling.

3. Following the selection of such a production variant, enter additional adjustments, when appropriate, for increasing the employment of labour and reducing investments bearing on the capital intensity of labour activities.

The scope of these adjustments should be determined in the light of specific conditions relating to the need to increase employment, the presence of skilled labour, and possibilities for disposing of additional quantities of output (the partial reduction of the capital intensity of labour by employing additional labour force may produce an additional volume of output).

4. The volume of capital investments should not be reduced beyond the level at which the rate of profit will be lower following the disposal of output than the existing average level for the production of goods and services as a whole.

In short, the following relation should hold for each concrete decision:

$$\frac{P_n}{I} \leq \frac{P}{I},$$

where $\frac{P_n}{I}$ — is the average rate of profit for the given country that is made possible through the utilisation of already available capital goods.

5. Preference should be given to those decisions for which increases in employment may be achieved without substantial reductions in the rate of profit.

6. In order to identify the influence on economic effectiveness of capital investments in the non-productive sphere an overall coefficient of capital investments (P') is calculated for the entire economy (or for the state sector) in accordance with the formula:

$$P'_i = \frac{\sum_i^w P_i}{\sum_i^n I_i + \sum_j^m I_j},$$

where P'_i — is the profit produced by sector (or project) i ($i=1, 2, 3, \dots, n$); I_j — represents capital investments into the sector or project i ; I_j — represents capital investments into non-productive sphere j ($j=1, 2, 3, \dots, m$).

Calculations of the rate of profit in individual economies in physical terms are associated with a number of difficulties that are largely attributable to the shortage of statistical information in developing countries. The availability of even aggregated intersectoral balances of national accounts makes it possible to calculate the overall surplus product within the country and within individual economic sectors and thus to establish the average ratio of the surplus product to capital, that is, the average rate of macro-economic profit. The extension of such calculations over a planned period requires forecasting estimates.

It is more difficult to establish the surplus product-capital ratio for individual enterprises, for the surplus product in its value form includes the following components: entrepreneurial revenue, rate of interest, commercial profit, and rents. Each of them, moreover, is partly redistributed through the state financing system and appears as a form of state expenditures.

Accordingly, in selecting production variants it is necessary to limit calculations to profits of enterprises (before the payment of direct taxes), i.e. entrepreneurial revenue. This is calculated with reference to financing operations that exclude borrowed capital. Such an adjustment is hardly likely to influence the selection of production variants, particularly with regard to their capital-intensity, since it may be assumed that the part of the surplus product assigned to the formation of commercial profits and rents will not in fact be influenced by the selection of a particular technoeconomic production scheme.

In practice, of course, for most developing countries this will refer to economic effectiveness in industry alone. But then in those developing countries in which a restructuring of the economy is taking place on the basis of industrialisation and in which state capital investments are becoming a major factor of development the problem of the effectiveness of capital investments acquires growing importance.

2.2.5. The Unity of Long-Term Planning and Current Planning

Socio-economic development is a continuous process. It is also a complex, heterogeneous process possessing many aspects within which individual elements and stages have

a beginning and an end, i.e. are discrete in nature. The rates at which different aspects of socio-economic development proceed differ. Structural shifts, for example, and also socio-economic transformations take place more slowly than do individual stages of the process of reproduction.

Planning must take into account all basic traits of socio-economic development, and above all both its generally continuous character and the discreteness of some of its elements and components. A combining of continuity with discreteness thus constitutes an important methodological feature of all socio-economic planning.

This characteristic of planning is reflected in the duration of national plans.

Generally three types of planning are distinguished, namely, long-term, medium-term and yearly. Sometimes, however, long-term and medium-term plans are combined into a single group of perspective plans, while yearly plans are viewed as current plans of development.

While all such plans represent instrument for achieving a unified set of national objectives and for carrying out national tasks, the differences in their duration relate to their own specific tasks and objectives, which possess specific time boundaries. Accordingly plans of different duration should serve as complements rather than duplicate each other and should constitute a co-ordinated system.

Long-term plans are primarily concerned with the most durable qualitative processes of development, including socio-economic transformations and sectoral and regional shifts in the productive forces. They are employed in order to define the objects of economic policy over prolonged periods of time and to formulate a strategy of socio-economic development. Their primary role is to anticipate qualitative changes in the economy and in the social sphere and to regulate them. Because of the high level of uncertainty that attaches to the future, long-term plans in developing countries are goal-oriented plans, or else normative forecasts of those particular qualitative changes that must be carried out over a specified period of time. Such goal-oriented forecasts are supplemented by forecasting studies of particular social phenomena and processes that do not lend themselves to regulation. In other words, long-term plans are intended not merely to foresee future development but also to select that variant of development which

is socially most desirable and to substantiate its realism and feasibility.

The duration of long-term plans thus depends on the nature and duration of the socio-economic processes that constitute their basis and on the possibilities for forecasting them in a scientifically valid manner.

Initially there was a trend among developing countries to formulate very long-term plans encompassing 20-30 years and even longer. Subsequently as the emptiness of projects relating to such a long-term future became evident, there occurred a reduction in planned horizons. Today most long-term plans encompass 15-20 years. Our own opinion is that in the case of developing countries an optimal period for plans that meet the requirements mentioned earlier would be 10 to 15 years.

Medium-term plans are concerned with processes of socio-economic development of shorter duration and determine above all the dynamics of economic growth. This defines their relative autonomy and their role as the principal link within the entire planning process. Aside from serving as a means of implementing, specifying, correcting and detailing long-term plans, as some specialists in developing countries are inclined to believe, they also have their own purposes and objects of application. At the same time they cannot be carried out outside the context of long-term plans.

The principal task of medium-term plans is to regulate economic growth. This does not mean, however, that qualitative socio-economic changes and structural shifts are not reflected within them. In fact, qualitative changes in a society's socio-economic structure may operate as important factors in accelerating economic growth, and fundamental economic, social and other shifts occurring within a given planned period must therefore be taken into consideration as well. Medium-term plans possess a larger volume of detail, even though they view structural transformations as a means and instrument of economic growth rather than as their principal contents.

The duration of medium-term plans is primarily determined by the time needed to carry out major programmes of development in production and non-productive spheres of the economy, and especially capital investment programmes. They are usually calculated for a period of 4 to 7

years (most frequently for 5 years, as is the practice in most socialist countries, which have acquired considerable experience in drawing up and carrying out medium-term plans). This corresponds to optimal time horizons for the construction and commissioning of major projects in various sectors of the economy, and in particular of enterprises in processing industries.

Because medium-term plans constitute the principal form of economic planning, the manner in which they are interconnected is particularly important. This methodological aspect of planning assumes that there exists an organic continuity between plans which is reflected both in the contents of all their major sections and in a unity of the methodology employed in developing them.

It cannot be said that the principle of continuity in medium-term planning is widely accepted by all planning specialists in developing countries. In any case it is applied in some measure only in a small number of countries. In a number of instances, moreover, it is merely viewed as a highly specific method for providing continuity, namely, the use of so-called rolling plans. This is a method in which a medium-term plan for a standard duration is drawn up anew each year, i. e. the terminal year of the planned period is put off one year each time. At each such step adjustments are then introduced corresponding to changing conditions.

In most developing countries, however, medium-term planning is discrete in the sense that it refers to the development of a sequence of autonomous plans that are not mutually interrelated. In practice, such an approach to the development of plans often leads to the use of different methods in drawing up plans, as well as to the appearance of unplanned intervals between plans that are sometimes as long as two years.

Advocates of "rolling" plans believe that such plans provide for flexibility in national planning as well as for its continuity. And it is true, of course, that an application of that principle makes it possible to occasionally introduce very substantial adjustments at the end of each year. Frequently, in fact, little remains of the original plan towards the middle of the planned period because of the comprehensive scope of the adjustments that are made.

It is impossible to avoid the introduction of adjustments in the course of plan execution. It is important, however, to consider the basis for such adjustments. For the very nature of planning requires that as adjustments are made in plans in the course of their execution, their principal contents and major objectives and indicators continue to remain intact. For otherwise the very meaning of planning as an element of regulating socio-economic development would vanish and a situation would develop in which it is not the process of reproduction that is regulated in accordance with the corresponding plan, but rather the plan that is adapted to an autonomously evolving reproduction process.

Long-term plans and in large measure medium-term plans determine the major directions, objectives and tasks of socio-economic development. While they emphasise the outcome of development over the period as a whole their implementation requires a further elaboration and additional calculations that identify planned tasks for still shorter segments of time. That is the role of current planning. Its basic form are yearly plans.

✓ The tasks of current or yearly plans include the following:

1) concretisation of the tasks of medium-term plans in terms of specific sectors, regions and even individual enterprises. This constitutes a prerequisite for executing plans. It is determined, in short, what should be done and by whom so that the plan as a whole be implemented;

2) ✓ adjustment and correction of the medium-term plans' indicators in the light of changes in socio-economic development that had not been foreseen;

3) ✓ providing for a maximal mobilisation of all resources, and especially of additional resources "beyond the plan" that appear in the course of development;

4) ✓ the effecting of a systematic control over the execution of medium-term plans and the elaboration of measures that further improve the entire planning process.

Current plans are thus by no means simple reflections or magnified copies, as it were, of the corresponding medium-term plans. Rather they are active elements within the entire planning system that are linked with medium-term plans in two distinct ways, namely, both as their further elaboration and as an improvement in their content.

Recent theoretical studies concerned with planning in developing countries have given considerable attention to the basis on which yearly plans are developed. They also reflect a trend to view such plans merely as a more detailed form of medium-term plans and as an instrument of their implementation.

Because of the shortage of trained specialists, and the lack of needed information, yearly plans are in fact prepared only in a small number of countries.

In most countries they are replaced by state budgets which naturally encompass only a part of the processes of development that are reflected in medium-term plans (primarily state investment activities) and therefore do not represent adequate substitutes for yearly plans.

Frequently developing countries rely on short-term plans lasting 2 to 3 years, rather than on medium-term plans. Such plans may be divided into two major groups.

The first refers to various forms of so-called transition plans and preliminary plans. They are designed to encompass a period of transition from colonial status to that of independent socio-economic development and to serve as links between plans from colonial times and the initial national plan. They also include preliminary plans developed in situations in which it is impossible to design and carry out medium-term plans, as well as short-term plans intended to complete projects that were initiated by medium-term plans but for a variety of reasons were not completed.

The second type of short-term plans pursues a different set of objectives. They arise either from the appearance of serious problems with regard to the overall state of the economy or a need to resort to urgent measures that are usually not included in medium-term plans. They refer, in short, to the introduction of urgent adjustments into the process of socio-economic development in order to re-establish conditions needed for normal development.

Because elements of autonomous development continue to prevail in countries of the Third World, there often do appear crisis situations that call for the development of special programmes of 2-3 years duration. This explains the application of methods for developing specific types of 2-3 year plans that are usually unrelated to the general objectives of socio-economic development.

2.2.6. Determining the Objectives and Indicators of Plans

In terms of their contents all economic plans and programmes represent both a set of objectives relating to socio-economic development (or else the development of individual spheres and sectors of the economy, territories and districts) and ways and means of achieving these objectives. The objectives of the plans and the ways and means of achieving them are expressed in terms of a system of planned indicators.

Systems of planned indicators must meet a specific set of methodological requirements that follow from the particular role that planning plays in regulating the process of social reproduction.

The indicators should reflect (model) the main processes of socio-economic development and serve as an instrument in guiding them or else regulating them. In reflecting specific objectives of planned development as well as ways and means of achieving them a system of planned indicators must correspond to the objectives of the particular plan under consideration and to the specific conditions of a given country. They also depend on the presence of statistical and other information needed to develop a plan and to monitor its execution.

At the same time a system of planned indicators must encompass all major aspects and elements of reproduction and possess a sufficient degree of generality to provide for the plan's internal consistency.

In order to meet these contradictory requirements available possibilities for guiding and regulating the process of reproduction and the actual role of the plan in bringing about overall socio-economic development must be represented correctly. This is also true of component elements of the reproduction process. Within such systems elements of both forecasting and planning must be combined in appropriate ways.

In the case of developing countries three major blocks or closely linked sets of indicators may be identified.

Two such groups constitute the basis of the plan. They describe the current state and expected development within the planned period of all processes of socio-economic development that lend themselves to guidance and regulation by the state. (In many developing countries in which the

state still cannot influence the economy significantly these two groups of indicators are merged into one.)

The first group relates primarily to the state sector and also to those sectors of the economy that lend themselves to effective state control. They represent a deterministic set of planned indicators. 1

Those processes that lend themselves to regulation through systems of indirect instruments of state economic policy appear in the plan as forecasted normative (goal-oriented) indicators. That group of planned indicators is probabalistic. 2

The distinction between deterministic parameters and goal-oriented forecasts is fundamental from the point of view of the methodology of national economic planning. Those parameters that are established in a deterministic way represent realistic states of the planned process that are feasible within the planned period, while goal-oriented forecasts reflect objectives towards which it is desirable to move but whose attainment is not yet fully certain and is only characterised by certain probabilities. In the practice of socialist planning, accordingly, goal-oriented forecasts are expressed either in the form of qualitative indicators (i.e. verbal descriptions of the nature and main trends of development of the given process within the planned period), or else in the form of a bracket of parameters, which may include the quantitative characteristic of that process as a result of the plan's execution.

The third group of indicators relates to autonomous processes within the national economy and in the social sphere that may be forecast directly. It also includes forecasts of the influence of developments in science as well as of changes in the environment on the economy. In developing countries planned indicators that relate to social processes and to the development of many economic sectors (agriculture, domestic and external trade, services) as well as macro-economic indicators are often based on forecasts. This includes forecasts of external economic aid (other than that which is covered by existing agreements) and of trends within the world market. 3

The actual nature of each of these three groups of planned indicators follows from the given economy's specific characteristics, the particular tasks of development that have been selected, and existing possibilities for guiding the overall reproduction process.

In countries in which opportunities for guiding socio-economic development are limited even within the state sector, the major object of planning may initially be economic policy itself. In such cases the plan will largely refer to a diversity of organisational and economic measures on the part of the state itself aiming at a centralised regulation of state enterprises, and at a more effective control over the development of the private sector. All remaining indicators will then be of a forecasting nature.

All planned indicators may be subdivided into two subsystems. The first describes the objectives of the entire plan of development, while the second refers to the ways and means of achieving these objectives.

Indicators representing objectives are the main part of any plan. They express the essence of the process of planned development and identify its primary outcome.

They reflect the tasks with which the plan is concerned and also goal-oriented forecasts. The tasks of a plan are embodied in quantitative as well as qualitative descriptions of the objectives that are to be achieved within the specified planned period.

The very nature of planning requires that planned objectives be formulated as feasible tasks.

It is this which lends them a directive character. Such an approach is feasible only in relation to processes that may in fact be regulated. In the case of developing countries goal indicators may include normative forecasts.

In partial plans and programmes relating to processes that do lend themselves to regulation (for example, programmes of state capital investments) objectives must be formulated as tasks. In the case of plans of development the role of goal-oriented forecasts is greater, while in the case of long-term plans of development the objectives themselves may be formulated as normative forecasts.

The identification of planned objectives requires two stages, namely, their qualitative identification and their specification in terms of numbers. The greater the complexity of a planned process and the longer the planned period, the less it will be possible, all other things being equal, to arrive at quantitative identifications. In most cases the long-term economic plans of developing countries include only objectives expressed in terms of qualitative indicators, and these often prevail in medium-term plans as well.

Naturally, whenever objectives are largely expressed in terms of qualitative indicators alone the effectiveness of planning in guiding the process of social reproduction is reduced. For in such cases it is possible to reflect only general trends of socio-economic development but not specific outcomes. Such objectives always contain an element of uncertainty and this often makes it difficult and sometimes impossible to guide economic processes in the corresponding areas through planning.*

The very nature of planning requires that systems of goal-oriented indicators be internally consistent. Yet in actual processes of socio-economic development contradictions and problem situations always arise whose solution may then lead to the appearance of still other problems or else aggravate existing ones.

Whenever plans do not provide for ways and means of overcoming such contradictions, their implementation may cause one objective to be realised at the cost of sacrificing others, and may also cause failures in attaining all contradictory objectives.

In order to meet this difficult problem, i.e. to achieve a mutual consistency in planned objectives and remove contradictions, a number of authors have suggested that in developing countries plans should define the major goal-indicator, while the remaining indicators should be subordinated to it. Such an approach may be justified in determining a national strategy and in formulating the goals of long-term plans and programmes of socio-economic development.

In the case of medium-term plans, however, the selection of major goal-indicators may not lead to positive results. This is because in most cases they refer to some general macro-economic category such as the national income or the gross domestic product. But in the case of economies based on multiple formations and in which the relative weight of the private sector is considerable such macro-economic magnitudes can only be forecasted. It is therefore preferable to select goal-indicators of medium-term plans as measures that make it possible to describe more or less

* There are cases, of course, in which a verbal description of a planned objective is sufficient to identify its quantitative aspect. "To overcome unemployment", for example, implies attaining a 100 per cent employment level.

accurately the particular processes of economic development that do lend themselves to guidance or indirect regulation by the state. Contradictions and inconsistencies among goal-indicators may be resolved by establishing a hierarchy of such indicators. For example, of the following two goal-indicators, namely, increases in the productivity of labour through mechanisation and increasing employment, priority should generally be given to the first, and the indicator representing employment must then be adjusted in the light of the particular measures for mechanising labour that are employed to increase its productivity.

Depending on the plan's objectives and the general direction pursued by the state economic policy, goal indicators may include both purely economic indicators and others that describe the objectives of socio-economic development (such as increases in the relative weight of the state sector within the economy, specific tasks relating to agrarian reforms, and the distribution of incomes among individual social groups of the population) as well as tasks in the non-productive (social) sphere (such as the scope of primary education, the number of hospital beds, and the magnitude of pensions and of social insurance payments).

For quantitative indicators to be included into medium-term plans (particularly when they are formulated in relation to planned assignments) the corresponding resources must be provided and steps must be taken to carry out the specific measures that the plan requires.

It makes no sense to enter goal-oriented indicators into plans unless the corresponding functions may be assigned to specific individuals who know both their relation to the plan's general objectives, and are aware of the resources that have been placed at their disposal (cf. 2.3.7).

2.2.7. The Usefulness of Partial Planning

Developing countries often engage in so-called partial planning. This refers to autonomous programmes encompassing either individual spheres of economic activity, sectors of the economy or whole areas of a country. In many cases, moreover, overall national planning is essentially concerned with the design of programmes of capital investments, and especially of capital investments to be funded by the state.

The preparation of partial plans requires far fewer efforts than do extensive overall national plans. At the same time programmes of capital investment may define major directions and rates of national economic development and ultimately contribute to the solution of problems relating to the overcoming of backwardness. The development and implementation of special programmes may produce a substantial economic and political effect. This is true, for example, of programmes for supplying water to agriculture in arid regions and for overcoming soil erosion, of programmes for developing individual poor and backward districts, and programmes for developing export-oriented production centres.

In certain situations there is no doubt as to the general desirability of such programmes. It is also important, however, to establish the extent to which such planning is effective as an instrument for permitting the state to influence real socio-economic processes. At the same time the requirements as regards partial planning should be considered.

It has already been stressed that because of the multiplicity of reproduction relations, no economic sector or sphere of economic activity can develop in isolation from the rest of the economy. Hence the first requirement as regards partial plans is that they must be consistent with the development of other sectors and spheres of the economy.

This fundamental requirement follows from the very nature of the process of economic planning as a conscious form of establishing the proportions of social reproduction. But it is clear that it may be carried out most fully only when sectoral or else special programmes are viewed as component elements of overall national plans that encompass all major branches, sectors and spheres of the economy.

It is possible that in practice this requirement may be fulfilled to an acceptable extent by combining the development of sectoral and special programmes with the preparation of forecasts and estimates concerned with the particular economic proportions and indicators that will directly influence the implementation of a partial plan. The development of a medium-term programme of state capital investments, for example, that identifies the overall volume of state investments for the planned period with their approximate distribution by the years and economic spheres and

sectors, and indicates the principal projects and sources of their financing, requires the preparation of forecasts and estimates relating to the following set of basic indicators (these generally establish the extent to which the required resources are in fact available as well as the extent to which the programme accords with the overall process of reproduction):

- the overall volume of gross national income and its allocation to consumption and accumulation, with due account of expected supplies of external resources to finance investments;

- the possible volume of private capital investments;

- existing possibilities (including those in the private sector) for obtaining equipment and other material resources;

- possibilities for importing the means of production and technical services that the capital investment programme requires, with due account of the forecasted balance of payments and of expected conditions of external markets;

- the availability of required capacities in construction organisations;

- possibilities for normal levels of operation of production and other capacities being constructed on the basis of the availability of needed raw materials, other materials, energy and personnel, as well as of opportunities to market their output either domestically or else on external markets.

Forecasts and estimates bearing on a wide range of indicators are thus needed in order to develop a partial plan-programme of state capital investment, that are usually associated with overall national planning. Just the same the development of partial plans, and especially of capital investment programmes, may still be desirable, particularly in countries that have not yet acquired sufficient experience in planning and do not possess the conditions required for overall national plans encompassing all major elements of reproduction.

It is important to keep in mind, however, that partial planning reduces considerably the extent to which it is possible to influence the process of reproduction, and that above all, as compared with overall national plans, partial plans reduce considerably an ability to select those paths and variants of overall economic development and also of individual sectors that are most desirable and economically effective from a socio-political point of view.

2.2.8. Planning as an Integrated Approach to the Development, Implementation and Monitoring of Plans. Methodological Requirements as to the Organisation of Planning Activities

National economic planning may be divided into three stages: the formulation of a plan, its implementation, and control over its implementation. Each of them calls for appropriate measures by administrative and economic bodies. Accordingly plans may serve as instruments of economic regulation only when the mechanisms that allocate labour, financial and material resources to individual spheres and sectors of production actually operate in accordance with the state policies that are expressed in such plans.

Let us consider briefly the major links of such a mechanism and the corresponding requirements.

In view of the nature of the functions that national economic plans carry out in developing countries in guiding the development of the economy and of social processes (cf. 1.3), and in the light of the experience of various countries, the following general requirements may be listed for preparing national economic plans.

In order to develop plans that encompass both different aspects of economic development and its different levels, a system of planning bodies must exist whose activities are centrally guided and co-ordinated. It is preferable, first, that such a central planning body be established at the level of the state, and that it be freed, if possible, from other responsibilities. Second, it is advisable that such a body possess sufficient autonomy and independence in relation to other organs of the state. Third, it should possess the right to obtain any information it may need for developing plans. Fourth, it should be staffed by personnel that is specialised in the field of planning. Unless all these conditions are present, central planning bodies may experience serious difficulties in developing plans that adequately reflect the state's economic policy, are science-based, and also reflect as much as possible existing possibilities for shifting from autonomous to plan-oriented forms of establishing macro-economic proportions. In such a context a structure within which a central planning body relies both on planning units of ministries, state agencies and large state enterprises and

on regional bodies is particularly effective especially in countries possessing relatively large administrative and economic regions.

Central planning bodies provide methodological guidance to all planning units and co-ordinate all work relating to the preparation of overall national plans. But in carrying out their principal function, namely, the elaboration of overall national plans, they must carry out a number of complex tasks, including the following: to insure that national economic plans based on proposals originating in sectoral and regional planning subunits correspond to the general objectives and concrete tasks of state economic policy; to co-ordinate the initially contradictory proposals of individual ministries, agencies and government services into a coherent system, i.e. into a national economic plan whose tasks and indicators are mutually consistent and accord with realistic possibilities within the planned period for mobilising the corresponding labour, material and financial resources; and to develop a programme of administrative and economic measures aimed at an effective realisation of the plan and a schedule for carrying them out, i.e. to define the tasks of individual units within the country's administrative and economic apparatus.

The functions and structure of subunits on whose activities the realisation of plans depend may vary with the nature of the plans themselves.

All activities concerned with plan implementation must derive from the principle of concreteness and a knowledge of the addresses to whom each individual planned task and indicator refers. This, too, is a general principle. Each planned task, each indicator contained within a plan (except for forecasting indicators) must presume the presence of individual links within the economy that are able to execute the task or attain the given indicator within the specified planned time horizon. The activities on which plan implementation depends must thus derive from plans that are both sufficiently detailed and conveyed in operational terms to those units within the economy that are responsible for their implementation.

This is a general methodological requirement valid for all developing countries even though it may assume different forms (cf. 2.3.7).

Since the execution of a plan depends on the administra-

tive and economic activities of individual units within the state administration, national services, and state, mixed, and private enterprises, a plan whose tasks or recommendations are not in fact transmitted to these particular units in detailed operational terms cannot operate as an instrument for guiding the process of reproduction. Instead it then becomes essentially a forecast.

It is important that all administrative and economic bodies be aware of the general direction, objectives and tasks pursued by a plan, and that they be accurately informed concerning the specific responsibilities that are assigned to them. If, for example, the plan establishes the volume of state capital investments, then both the State Treasury and each credit-banking institution must know precisely whom they should finance, at what time, and to what extent, in order that actual capital investments conform to the plan. But it is also important that all ministries, government services, and firms know precisely the specific objectives and schedules that are assigned to them and the sources of needed services and supplies.

If, for example, the plan envisages increases in the production of some commodity, this must be known to all participating enterprises, not merely in general terms, but in the specific operational terms that are relevant to each one (either as an assignment or as a recommendation).

Because of this interdependence between plan development and plan implementation it is useful to rely on planning systems that are based on operational unit-to center and center-to operational unit patterns of communication. This requires that the particular economic units that will be directly involved in executing a plan also participate in its formulation. Proposed design indicators originating directly from eventual operational units are then sequentially aggregated (for sectors and districts) and employed as data by the central planning body in developing an overall national plan. Following the final elaboration of such a plan and its official approval, the central planning body will transmit it to operational units.

A specification of the identities of the operational bodies charged with executing the plan is not the only practical requirement as concerns planning. In particular the creation of juridical, organisational-and-technical and economic con-

ditions required for plan implementation is of equal importance.

They include the following elements:

—the existence of administrative and economic state organisations and agencies able to organise activities relating to plan implementation, to continually adopt appropriate measures, and to make it possible for all state and private enterprises, establishments and firms to execute such plans. Such state organisations and agencies (ministries, social services, etc.) must possess the legal and administrative rights that such measures and co-ordinating activities imply;

—the execution of economic policies that encourage, facilitate and stimulate activities that contribute to plan implementation and forbid, constrain, and impede activities that tend to oppose it.

The formulating of such economic policies is an important element in planning socio-economic development and is usually carried out with the active participation of central planning bodies. It represents, in fact, one of the functions of such bodies. Yet in many ways the successful planning of socio-economic development depends on the concrete administrative and economic activities of individual ministerial bodies and services that carry out the state's economic policy. National economic plans then serve as a means for co-ordinating their activities.

The third stage in planning relates to control over plan implementation. It is needed not only to summarise a plan's achievements but may also serve as an active instrument in organising all activities relating to plan implementation by timely identifying causes that impede the normal course of plan execution and by taking measures to overcome or weaken their influence, in particular, by shifts to different instruments of economic policy, as well as by introducing adjustments into overall national plans that represent responses to changes in the country's economic situation or its relative position on external markets. Together with a corresponding analysis of difficulties emerging in the course of plan implementation control activities over plan implementation also serve to improve the quality and scientific validity of subsequent plans. While the corresponding major functions are carried out by central planning bodies an important role is also played by those state

agencies concerned with the management of economic activities that are responsible for executing the corresponding parts of the plan. Without such an operational control and analysis of the course of plan implementation the activities of state bodies would be poorly co-ordinated and they would be unable to initiate in good time measures to meet the planned assignments. The effectiveness of such control activities depends considerably on the availability of progress reports concerned with the plan's tasks and indicators (cf. 2.3.4; 2.3.9).

2.3. STAGES IN THE PREPARATION OF PLANS

The process of developing national economic plans consists of a number of stages that are closely linked with each other.

The first of these may be called a pre-planning stage. It includes preparing an informational and statistical basis, an analysis of the initial state of the economy and of trends in its development (this is usually done on the basis of analyses of the outcome of the preceding plan) and identifying various possibilities in the sphere of socio-economic development, the preparation of long-term forecasts, and identifying the major objectives and tasks of economic and social development during the current planned period.

The second stage is concerned with the preparation of the plan itself. It, too, consists of a number of distinct steps, many of which are closely linked to each other and are sometimes difficult to distinguish.

At this stage the selection of a method (of an initial logical model) for formulating a plan is important. To a large extent, it determines the entire sequence through which plans are then elaborated.

Further work on the plan is then divided into the following steps, whose order may sometimes vary: the elaboration of qualitative and quantitative indicators; the preparation of a detailed plan and the co-ordination of planned decisions; the preparation of planning documents; the identification of operating bodies charged with its execution; and the elaboration of the political and economic measures that plan implementation requires.

2.3.1. Preparing a Plan's Informational and Statistical Base

It is impossible to plan without a corresponding statistical basis. On the one hand, statistics contributes the necessary initial material for drafting a plan that is based on an analysis of past economic activity, including the execution of the preceding plan. But statistical data also serve as an important instrument of control over plan implementation.

The creation of a statistic basis in developing countries is not a simple matter. It refers to a gradual adaptation of the statistical system to the requirements of the planning process and to the preparation of statistical data that would make it possible to calculate basic planned indicators. Since the economic plans of developing countries are largely of a forecasting nature, statistical bodies may forward various estimates to planning bodies as well as calculated indicators.

The greater the reliability of available statistical information and the greater the extent to which it is expressed in operational terms, the more it contributes to the quality of national plans, particularly from the point of view of ensuring their internal consistency as well as a consistency between objectives and real possibilities of socio-economic development.

The specific requirements that statistical data must meet follow from the nature of the plan and prevailing socio-economic conditions. It is possible, nevertheless, to state a number of general requirements.

It has already been noted that such information should be available at all stages in the development and implementation of plans.

The frequency with which such statistical data must be prepared in assisting both pre-planning activities and the elaboration of the plans themselves is largely determined by the length of the planned period. Such data must also be more fundamental and more analytical than data employed in connection with control activities. (This refers to operational control over plan implementation rather than to the analysis of the plan's outcomes which helps in developing the next plan). Accordingly a large role is played not only by time series but also by a diversity of data obtained through one-time statistical studies, sample surveys, and

censuses adapted to the initial period of the development of the plan.

Statistical data serving plan development must make it possible to identify major socio-economic trends during the preceding period and also provide an initial basis for meeting the plan's requirements for internal consistency. Accordingly they must encompass all levels of the economy and all major stages of the reproduction process, both in value terms and in physical terms.

The nature of the statistical information that is needed for control activities is determined by the plan's objectives and tasks (its goal indicators). That information must make it possible to identify major trends of socio-economic development in the course of plan implementation as well as the extent to which they meet the general objectives and principles of state economic policy that underly the plan. It must also permit a rapid identification of undesirable processes and trends.

This requires that the available information be of an operational nature. It must reflect, in short, the current state of plan implementation and of the economy rather than expectations and desires formulated at an earlier date.

Both effective control activities over plan implementation and the preparation of effective measures for entering necessary adjustments are made impossible by major delays in the preparation of information.

An important requirement of statistical information serving planning activities concerns its objectivity and logical consistency. The experience of many countries shows that this is best achieved when a centralised state statistical service exists that is responsible directly to the state's executive bodies. (This does not exclude the existence of departmental statistical services.) The independence of such a body from other ministries and government services makes it possible to offer a unified methodology for collecting and processing statistical information, to analyse more effectively the entire set of available statistical data, and to convey to both planning and other government bodies information that is free from the internal biases of individual agencies.

In concluding, we shall consider briefly a number of relatively specific issues that may play an important role both in the formulation of plans and in controlling their implementation.

It is well known that all value indicators within plans are expressed in terms of constant prices. Usually this refers to prices of a base year or period corresponding to the preceding planned period. Such indicators provide a basis for making plans consistent and for maintaining basic economic proportions in a planned manner.

Particularly because of inflationary processes, however, actual prices within most countries as well as world market prices are far from stable. In addition, changes in the prices of individual groups of commodities and services are often of an irregular nature and result in substantial discrepancies between magnitudes of planned indicators expressed in value terms and the actual magnitudes of corresponding values. This makes it difficult to control plan implementation and to estimate the extent to which plans are in fact fulfilled. In addition, and this is particularly important, differences in rates of change of prices alter all value proportions of reproduction, and a plan that is made internally consistent on the basis of planned prices may in fact turn out to be unbalanced. Under such conditions price statistics acquire major importance. The corresponding statistical information concerning the dynamics of prices makes it possible to both identify the actual state of affairs relating to plan implementation in terms of value indicators and make necessary adjustments in the course of plan execution in order that disproportions in the development of national economies be avoided.

It is widely known that in most developing countries a major section of plans of national development relates to capital investment programmes (either state capital investments or overall capital investments, including those of the private sector). The implementation of many other sections of overall national plans and achievement of the overall tasks of economic development depend considerably on the extent to which such capital investment programmes are fulfilled. As a result of increasing prices, however, and of increasing expenditures on construction activities, there often results a situation in which capital investments plans appear to be fulfilled or even overfulfilled, if expressed in terms of value indicators, while the actual projects to which they refer continue to be largely uncompleted. The cause may be not only increased prices for construction materials, capital equipment, and wages in the construction sectors, but such other

factors as errors in estimating the cost of capital construction.

In order to avoid such difficulties in time and to control the implementation of plans relating to capital construction, particularly in the state sector, it is desirable that statistical accounting be effected in capital construction, i.e. that data be collected periodically concerning the commissioning of individual enterprises and the extent to which other construction projects are not yet completed.

2.3.2. Analysing the Economy's Initial State

An analysis of the economy's initial state and a determination of its potential possibilities constitutes a necessary and very important prerequisite for the successful development of any national economic plan. The nature of such a pre-planning stage of the work, however, depends in many ways on the extent to which planning bodies possess data relating to the current state of the country's economy, have identified the major problems that are associated with the objectives of its socio-economic development, and have identified potential possibilities in each area.

If the principle of planning has already been established in developing the economy, then an analysis of its initial state in order to develop a new plan is largely an analysis of the outcome of the preceding plan. A major difficulty in this connection results from the fact that in practice the preparation of a new plan must begin before the preceding one is completed (for medium-term plans this will be approximately 1-1.5 years earlier). Planners must then estimate the probable outcome of the current plan.

Such studies of the economy's current state and analyses of preliminary outcomes of the current plan seek to identify the major trends of the country's economic and social development, as well as major bottlenecks and disproportions that inhibit national economic development. They often produce a need for additional statistical information.

Another concern of pre-planning studies relates to estimates and analyses of potential possibilities for economic development during the planned period, in short, of the basic factors of growth. This includes natural resources that may be used in the economic process, labour resources (particularly skilled and trained labour), available productive

capacities and the extent to which they are applied, and promising sources for financing investments. Such studies also include analyses of the country's social structure from the point of view of the manner in which it affects opportunities for economic growth.

In the case of developing countries two important specific problems should be included in planning activities that may influence the entire approach to developing a plan. The first concerns establishing the possibilities and boundaries of planning with regard to the reproduction process from the point of view of a transition from autonomous to planned forms of economic development. The second concerns the possibilities available to the state to regulate that development through a diversity of measures of economic policy (cf. 1.3). But planning bodies must also establish which elements and processes of reproduction may in fact be planned at a given stage; which other elements and processes of reproduction may best be influenced by the state through methods of indirect (economic and administrative) regulation and which others may be represented in the plan as objects of goal-oriented forecasting; and to what extent the country's socio-economic development does not in fact lend itself to regulation and may be reflected in a plan only on the basis of exploratory forecasts.

2.3.3. The Development of Long-Term Forecasts

Long-term forecasting constitutes one of the major elements of pre-planning studies. Its role is to determine the possible variants of scientific and technological as well as economic and social development, both over the planned period and over longer periods of time. This contributes to the selection of the most rational and realistic variants of decisions planned.

Since in the case of developing countries there are many elements and aspects of reproduction that do not lend themselves to planning, long-term and short-term forecasting studies are needed not only for pre-planning activities, but also as component elements of plans of socio-economic development. Forecasts of output of gross product and national income, for example, and the latter's utilisation for consumption and accumulation, as well as forecasts of the develop-

ment of foreign trade are needed before plans may be developed.

It is usually desirable, particularly in the case of medium-term plans, that pre-planning forecasts be available of major processes in scientific and technical, economic and social development over longer periods of time than the one envisaged in the plan. When plans are prepared for periods of five years, forecasts may refer to ten-year or even longer periods (as in the case of forecasts of bringing into play natural resources and of demographic processes).

Pre-planning forecasts are usually employed in preparing medium-term and long-term plans and programmes of socio-economic development. They are sometimes also useful in preparing yearly plans (e.g. forecasts of the state of external markets in connection with the preparation of yearly plans of exports and imports of major commodities).

The present study is not concerned with a description of specific methods, techniques and calculations employed in forecasting. These depend on the nature of the phenomenon and processes being forecasted, the extent to which they have been studied, the availability of corresponding information and the nature of technical possibilities for effecting calculations, as well as other factors. Let us note, however, two factors that relate specifically to forecasting studies of the socio-economic development of the Third World countries. Because of their low initial level of development and of the operation of a number of other factors, individual aspects, proportions and interdependences of the overall process of reproduction are subject to relatively rapid changes, while other factors continue to remain stable over long periods of time. For example, the construction and commissioning of one or two, or perhaps several relatively large industrial enterprises, particularly in the case of relatively small countries, or else the bringing into operation of deposits of natural resources, may lead to substantial increases in the gross product and national income within a single medium-term plan. It may also lead to appreciable changes in a number of economic proportions, and in the structure of production and of exports, while influencing very little the overall composition of personal consumption. It is therefore not always appropriate to rely on extrapolation methods of forecasting economic development, since in many cases extrapolations of existing trends into the future on

the assumption of a continuing stability of the corresponding time series will lead to major errors in estimating the economy's future parameters.

Similarly a utilisation of mathematical models and formulas initially devised in the context of developed capitalist countries is far from always appropriate for forecasting individual aspects of economic life and economic and social development in newly free countries. Errors may be especially serious when such models and formulas include numerical relations inferred from studies of developed economies and corresponding to their social structures.

The nature of pre-planning forecasts, and especially of forecasts that influence plans directly depends on the specific conditions that exist in a given country, as well as on the nature of the plan itself. It is possible, however, to identify several groups of phenomena and processes whose forecasting is needed in formulating most medium-term plans. In the context of conditions that are most typical of developing countries this refers to the following long-term forecasts:

Forecasts of scientific and technological progress. These are concerned with national activities in the field of science and technology and the prospects of introducing them into the economy, and especially with opportunities to utilise results of scientific research and design activities already available in other countries in the specific conditions that exist in the given developing country, both within the planned period and beyond its time frame. It is also concerned with the general influence of achievements in science and technology on the development of national economies;

Forecasts of natural resources and their use in the economic process. The availability and utilisation of prospected natural resources exerts a considerable long-term influence on the scope and structure of production, especially of industrial production, and also on exports and imports, capital investments, and employment. It is on the basis of such forecasts that major activities in the field of geological survey are initiated, with due consideration of the country's needs for, and of its exports of, fuels and raw materials, as well as of available or else of anticipated deposits of mineral resources;

Forecasts of demographic changes. This constitutes a basis for establishing future labour resources, preparing cor-

responding socio-economic measures, and anticipating problems in developing required social infrastructures and in the production of consumer goods.

A large number of macro-economic forecasts are also included in one form or another in the aggregate of indicators planned. In particular, in developing overall national plans a need usually arises for forecasting the following indicators:

- the volume and sectoral structure of the gross social product and of national income;

- the assignment of gross national product and income to consumption and accumulation;

- the need for financing capital investments and both their external and internal sources;

- the level and composition of personal consumption (in terms of major groups of commodities);

- calculations of the balance of payments.

Depending on the level of detailing the plan, a need may arise for preparing economic forecasts for individual sectors of production. The scope of such forecasts may be quite diverse. They may include, for example, forecasts of internal needs for major types of construction materials, such as rolled steel and cement, and forecasts of balances between available supplies and needs for cereals. (In cases in which the private sector continues to prevail in agriculture the output does not lend itself to planning and calls for forecasts). Forecasts of exports of basic types of products are also included in those forecasts.

2.3.4. Establishing Major Tasks in Socio-Economic Development

The identification of major tasks in socio-economic development over the planned period and of its major directions is derived from the political programme of the forces in power. In particular the determination of the general direction of socio-economic development largely determines the economic tasks that the country's political leaders define, as well as the means and methods employed to achieve them.

Even though it may sometimes be possible to formulate major objectives of economic development as "purely economic" ones, that are independent of social factors (this is

true, for example, of increasing the volume of gross product or income to specified volumes, of increasing the share of industry in gross output, and of balancing exports with imports), it is difficult to imagine a situation in which political powers do not express their attitudes towards specific socio-economic means and methods for meeting the tasks and objectives of the country's economic development and in which it would not have any position with regard to the development of the social sphere.

It has already been stressed that national economic plans are an important means for formulating the state's economic policy. But that function of national economic plans can be carried out effectively only when the major objectives and tasks of socio-economic development that are formulated at the level of state policy are defined with respect to a given stage of development (a concrete planned period), and are realistic from the point of view of economic, social and political conditions existing in the country.

Both the selection of major objectives and tasks of socio-economic development and the elaboration of directives on the plan represent a political decision and a function of the country's political leadership. They are usually possible only through a close co-ordination of the efforts and points of view of the political leadership and planning bodies on the basis of realistic estimates of the potentialities and prospects of development of the country's economy.

It is planning bodies (and especially a country's central planning body) that must define the boundaries of what is possible and desirable in attaining the major objectives and tasks of socio-economic development that are defined at the level of the country's political leadership. This may create a need to revise substantially the directives and recommendations bearing on the preparation of a plan.

Obviously, when a government relies on directives that do not conform to realistic possibilities it will not receive realistic plans from planning bodies and will not have a capacity to influence a country's socio-economic development through planning. For their part, planning bodies do not have the right to ignore the major objectives and tasks of socio-economic development that they receive from the political leadership.

2.3.5. Selecting an Initial Logical Model of a Development Plan

The selection of an initial logical model is one of the major methodological issues in preparing a national economic plan. In principle, the following five types of initial models of planning may be employed. They differ both in their general logic of plan elaboration and in terms of the basis on which general overall national plans are developed:

- 1) planning in terms of individual projects;
- 2) planning in terms of sectors;
- 3) macro-economic modelling;
- 4) integrated planning;
- 5) optimal national economic planning.

Planning in terms of individual projects. The essence of this approach may be inferred from the nature of its basis. This is the identification of a certain complex of projects relating to the various sectors of the productive and the non-productive sphere. It is from this that all other planned indicators are derived. For example, it may be envisaged that the following construction projects will be carried out within the country during the planned period: a metallurgical plant possessing a full production cycle with a capacity of 600,000 tons of rolled steel per year (for the initial period); a plant for assembling tractors with a capacity of 10,000 machines per year; a plant for nitrogen fertilisers; two shoe factories; a textile plant; three land-reclamation systems; ten centres for repairing tractors and agricultural machinery; fifteen new schools; and three hospitals. It is from the requirements of these projects that the overall volume of required capital investments is calculated and that calculations are made of needed increments in output (with due account of the time-limits for commissioning projects and employment), as well as of needs for various types of raw materials, other materials and equipment.

Sectoral planning. Unlike in project-oriented planning the initial basis for a sectoral plan is provided by indicators describing major sectors of the economy (for example the production of ferrous metals, cement, textiles, footwear, grain, increases in the number of cattle and the amount of meat and dairy products, increases in the number of persons being educated, etc.). It is on the basis of calculations of

this type that a list of projects is then formulated, together with specifications of their output capacities and the volume of capital investments that they require, as well as of other plan indicators.

The method of macro-economic modelling. In applying macro-economic modelling a set of aggregated macro-economic indicators is employed as an initial basis for developing national economic plans that are calculated with the help of economico-mathematical methods and of mathematical models (for example, models of growth), or else of balance relationships (aggregated balances of the input-output type and national accounts). Generally such macro-economic indicators include the volume and rate of growth in national income and gross national product, their assignment to consumption and accumulation, their aggregated sectoral composition, exports and imports expressed in terms of value, and net changes in capital investments and in the balance of payments. It is on the basis of such aggregated indicators that calculations are then made of the volumes and sectoral composition of capital investment, of each sector's output, and of a number of other planned indicators.

At the present time most developing countries formulate their national plans on the basis of either project-oriented calculations or else of macro-economic models. The method of sectoral planning is used less often. It would appear that neither of these three methods possesses clear advantages or should be given preference under any conditions.

The advantages of project-oriented and sectoral planning are due to the fact that the initial information for developing plans is derived from designs and proposals made by specialists that know well the current situation in individual sectors and have studied the possibilities for carrying out the projects being studied. They are largely based on concrete data derived from pre-project studies, techno-economic calculations and even specific technical designs. Yet, neither the possibility nor the desirability of developing individual sectors and of carrying out individual projects can usually be fully established without a knowledge of much data that are external to given projects or sectors. This may refer, for example, to the needs of the country's economy for the output of a given sector or project, and to the possibilities for financing the capital construction activities from available financial resources.

Plans developed on the basis of macro-economic models, on the other hand, are often of a forecasting nature, even though such a method does also make it possible to rapidly exclude sectoral projects that are clearly unrealistic from the point of view of financial possibilities. Macro-economic models and aggregated balances are constructed in terms of aggregated indicators and coefficients. They do not consider realistic possibilities and needs of the economy at the level of sectors, of concrete production activities, and of specific objects of capital investment. Accordingly they represent an approximate model that may not reflect realistically the existing situation in the economy.

A survey of the planning methodologies employed in different groups of developing countries indicates that in those countries that possess a developed state sector and in which the major part of capital investments is financed by the state concrete projects usually serve as the point of departure for developing national plans, whereas macro-economic models are generally employed to provide for the consistency of planned indicators calculated on the basis of projects; and that in countries in which private capital prevails planning relies on macro-economic models in a far greater measure.

A second observation that follows from an analysis of the planning experience of many developing countries, as well as from a theoretical and methodological analysis of the principles that govern social reproduction (cf. 2.3.1 and 2.3.2), is even more important, namely, that no matter what the initial basis of plan preparation may be, planning itself must encompass all levels of the national economy, for otherwise a plan will turn out to be unbalanced, or else will be deprived of its concrete economic content.

From such a point of view the differences between project-oriented planning and planning based on macro-economic models may be represented as follows:

The method of integrated planning. The presence of multiple feed-back relations and mutual influences among planned indicators reduces practical activities in constructing economic plans to a progressive elaboration of details characterising the plan at the level of projects and enterprises on the basis of calculations of intersectoral linkages and of general economic indicators together with a parallel correction of more general indicators on the basis of more spe-

National economic level	Initial element of plan formulation	
	Project-oriented	Based on macro-economic model
Macro-economic level	3	1
Intersectoral relations and economic sectors	↑ 2	↓ 2
Planned projects and enterprises	↑ 1	↓ 3

cific ones. In this way an internal consistency of the plan is achieved.

It is above all on this type of calculations that the method of integrated planning is based. The current state and development of all spheres and sectors of the national economy during the planned period are described through a system of statistical and dynamic economico-mathematical models that simultaneously reflect mutual relations among all levels of the national economy. While the structure of such models may differ considerably they may be generally reduced to the following groups:

1) macro-economic models of economic development (dynamic and static);

2) models of intersectoral relations;

a) intersectoral aggregated dynamic models;

b) systems of more detailed intersectoral models expressed either in value terms or else in physical terms;

3) models of development and location of sectors of the productive sphere;

4) models of development and location of elements of the non-productive sphere;

5) models of realisation of individual projects (construction, fitting out, installing equipment, modernisation of enterprises).

In elaborating a national economic plan through the methods of integrated planning a comprehensive useful point of departure may be provided by data concerning the needs of society for consumer goods and personal services, together with data concerning the means of labour needed for expanding and replacing basic and circulating capital; or else by data concerning the level of national income and its division be-

tween consumption and accumulation. Initial specifications concerning the society's needs are then usually revised in the light of available resources and factors of production.

The advantages of the integrated approach to planning derive from the fact that it makes it possible to develop and integrate simultaneously all basic sections of a plan. This reduces substantially the time needed to carry out planned calculations, and also increases their reliability. Such a method also makes it possible to formulate several variants of a plan, each of which is internally consistent. On the other hand, the use of integrated methods of plan development requires a preliminary theoretical analysis of a particular complex of models that may be applied to a particular country, and also requires relatively comprehensive statistical data as well as data concerning the norms that economico-mathematical models at various levels may require. Beyond this sufficiently powerful computers are needed together with the corresponding programming and operating personnel.

Most developing countries do not possess all these elements. In addition, because of the low level of development of productive forces and of the prevalence of small-scale commodity producers in many of them, the nature and reliability of initial statistical information are often so limited that the elaborate and expensive calculations required by the comprehensive planning method are wholly unjustified. A more suitable and less time-consuming approach is provided by project-oriented methods, or else of macro-economic models with subsequent co-ordination of the basic planned indicators at the sectoral and macro-economic levels (achieved through calculations of individual value and physical balances, such as the balance of the capital investments as divided among individual projects).

The fundamental difference between the method of optimal planning and the method of integrated planning is one of scope. In optimal plans the entire national economy is described through a system of economico-mathematical models and is viewed as a consciously optimised system.

A single optimisation criterion and hence a single objective function is selected for all levels of the national economy. This presupposes a coincidence of the interests of all economic agents with the interests of the economy as a whole (expressed through the objective function of a

self-regulating system), and thus is appropriate only in cases in which there exists a full socialisation of all, or else of an overwhelming majority of means of production. A solution to a problem of optimising a plan is attained in the light of available factors and conditions that constrain possibilities for developing production and for satisfying the needs of society during the planned period. Such conditions and factors include non-recoverable natural resources, the country's current level in science and technology, and, what is the most limiting factor of production, either labour resources or capital, i.e. possibilities for financing and supplying the material requirements of new production activities. Other constraining conditions include those national economic proportions that do not lend themselves to a strict calculation and are determined through subjective solutions, such as the allocation of capital investments between the productive and non-productive spheres (cf. 2.2.2). It should be noted that the methods employed in working out optimal national economic plans are not yet fully developed and have been applied only for experimental and exploratory calculations.

In the case of those developing countries in which private ownership of means of production prevails, the problem of optimising national economic plans is altogether insoluble and only the selection of individual planned decisions may be considered (above all at the level of major projects) with due regard for their economic effectiveness (cf. 2.2.3. and 2.2.4).

2.3.6. The Selection of Indicators and the Formulation of a Detailed Plan

The selection of a particular economic model clearly influences the procedure that is subsequently employed in formulating a plan as well as the corresponding statistical and other information and the range of planned indicators. The latter largely depend on the plan's scope rather than on the methods through which it is developed, that is, on the degree of coverage by the plan of the process of reproduction, both in its material and social aspects.

In section 2.2.6 ("Determining the Objectives and Indicators of Plans") a number of major methodological characteristics were considered that bear on the selection of indicators and on the formulation of planned objectives. Accord-

ingly, we will limit ourselves to some additional observations concerning the selection of indicators of national medium-term plans, particularly in achieving an internal consistency of planned decisions.

It is unlikely that some universal recipe exists for selecting planned indicators and for describing an entire plan as a system of forecasted estimates of objectives and tasks of economic development as well as of the means and instruments selected for achieving them. Nevertheless, any plan of socio-economic development contains certain general aspects that are independent of the structure of the plan itself.

The content of a plan and the system of indicators on which it relies must correspond to the tasks and objectives (directives) relating to the given planned period that are determined by the country's political leadership. While political directives relating to a plan may be of a general nature and may formulate (with the help of qualitative but not quantitative descriptions) only the general directions and trends of development and their end results, it is the function of plans to give the set tasks a temporal (within the planned period), spatio-structural (sector, department, area) and quantitative characterisation. A system of planned indicators is constructed accordingly.

Thus while the country's political leadership may assign to planners the task of reducing the numbers of unemployed persons, the plan formulation process will develop forecasted indicators that describe the growth in numbers of able-bodied persons, indicators describing the creation of new jobs, and calculations describing changes in the numbers of able-bodied persons not employed in production. If the planned objective is to reduce imports and to gradually meet the needs of the population through domestic output of the textile or shoe industries, this will be reformulated within the plan in terms of a number of mutually interrelated tasks and indicators. These may relate either to a programme for developing national textile and shoe industries that includes forecasted estimates of changes in the population's demand for those products (with due consideration of demographic factors, levels of incomes, and the composition of expenditures) or to programmes of capital investments for developing a raw material base, for importing raw materials, and for training skilled personnel.

The ultimate indicator may be an estimate of the time period within which the country have basically replaced the importation of such consumer goods through domestic production.

Systems of planned indicators usually encompass a wider range of issues than those that may be inferred directly from objectives and tasks formulated by the country's political leadership. As has already been noted they must represent all reproduction processes in some detail from the point of view of their development during the planned period, as well as of the final outcome, in such a way that the plan be made internally consistent.

In practice any logical scheme for formulating national economic plans requires both macro-economic and sectoral planned specifications. Accordingly a major element in designing a plan that often represents the main substance of planning activities is the mutual co-ordination of sectoral and territorial projects, that is, the mutual co-ordination of the draft plans with the programmes of ministries and regional bodies. It follows that a final planning document is not merely a sum or mechanical addition of sectoral and regional plans, programmes or individual projects. Rather it is the outcome of a rational combining of such programmes and projects in the light of the particular strategy of development selected by the government and of the directives that were given by the political leadership at the initial stage of plan development.

A co-ordination and complex integration of projects of sectoral and territorial plans and programmes into a single national economic plan is a necessary condition and a basis for carrying out a unified state economic policy within the given planned period.

Above all such activities seek to achieve a correspondence between adjoining sectoral and regional sections of the plan, both from the point of view of establishing needs for specific resources and from the point of view of meeting these needs. Ultimately an equality is achieved between the planned volumes of resources (domestic and imported) in their macro-economic, sectoral, and, when possible, regional aspects, and all types of their utilisation (including exports).

The following economic levels for co-ordinating planned indicators and calculations may be distinguished:

A. The micro- and macro-economic aspects.

1) Project-sector: the co-ordination of individual projects within the context of a given sector and the co-ordination of integrated intersectoral projects with programmes of development of the corresponding sector.

2) Intersectoral relations: the co-ordination of indicators and programmes of development of adjoining sectors and spheres of economic activity.

3) Sector-macro-economic processes: the co-ordination of sectoral programmes with macro-economic indicators.

4) Macro-economic proportions: the identification and co-ordination of macro-economic proportions and relationships.

B. The regional aspect (when the plan contains regional sections).

5) Project-sector-region: the aggregation of individual projects into regional-sectoral and regional programmes.

6) Region-sector-macro-economic processes: the co-ordination of regional programmes and indicators with sectoral and macro-economic indicators.

Planned indicators are also integrated at various levels, both from the point of view of the major stages of the reproduction process and of the forms that it may assume (in its physical form and value form).

For example, an analysis of the current state of agricultural production in a country may show that the use of fertilisers offers a possible means for increasing the output of agriculture. On the basis of pre-planning calculations it is then established that 50,000 tons of complex fertilisers are needed per year, and decision to construct an enterprise possessing the corresponding capacity is taken. A linkage is thus established between a planned programme and needs expressed in physical terms. If, however, it is not established that agricultural enterprises do possess the means for purchasing this fertiliser and are also not in a position to apply fertilisers effectively in the economic sense (a value-oriented analysis) all other efforts in developing and carrying out such a project may be fruitless.

Particular attention should be given to the co-ordination of programmes relating to state economic activities as a whole, and in particular to the development of the state sector. State revenues and expenditures, including state capital investments, must be balanced. An analysis is also

needed of the correspondence between the major directions pursued by state economic policy and the overcoming of possible contradictions among them. Such contradictions often result in a failure to carry out national plans.

In achieving an internal consistency of economic plans in developing countries use is always made of indicators based on forecasts.

Indicators that are calculated through methods of exploratory forecasting and represent processes that do not lend themselves to regulation during the planned period (for example the dynamics of population growth and changes in the structure of personal consumption) refer to measures that are exogenously given and to which other indicators must be adapted. Indicators that are introduced into plans on the basis of goal-oriented (normative) forecasts and that describe processes that do lend themselves to regulation may be changed and adapted to other indicators only when it is possible to formulate and carry out a sufficiently effective programme of state regulation of the corresponding processes and elements of reproduction.

Planning activities that are essentially concerned with achieving an internal consistency of plans may be reduced to the solution of two problems: first, achieving a proportionality and a balancing of individual elements of the overall process of reproduction and identifying the most probable state of the process of economic reproduction in the future; and secondly, establishing the most probable states of the process of reproduction in the future, the relations that exist among individual properties of that process (or else properties of elements, parts and aspects of that process), and the factors that govern its development.

This is achieved through the use of a diversity of balance relationships, both in value form and in physical form, and through the use of mathematical models and equations (see Section 5).

An important activity at the concluding stage of planning activities concerns the entering of necessary adjustments into operational plans, including long-term plans. Such adjustments may arise from changes in a country's internal as well as external conditions, and from the appearance of new possibilities and needs that had not been considered earlier (cf. 2.2.5).

One of the last stages in the formulation of a plan con-

cerns the preparation of a planning document. This is done by the central planning body in co-operation with sectoral and regional planning organisations. It is very important to achieve a wide measure of social participation in this process, including that of trade unions, representatives of private business, and intellectuals. At this stage a generalisation is effected of suggestions and proposals made by central ministries and regional bodies, and the programmes that they have designed are incorporated into a single draft country-wide plan.

It is important that this document meet all the methodological requirements mentioned earlier. In particular, it must accord with the strategy of national economic development that was selected by the state. It must also formulate clearly the objectives and tasks of development and must specify the means that were selected to attain them.

A national economic plan is not simply a list of selected objectives, but also contains guidelines. It is desirable that the resulting planning document, together with adjustments in those plans that are already in operation, be approved by the country's highest legislative body, for this transforms it into a plan that is mandatory for all state bodies that directly participate in its implementation. It is very important that plans acquire the status of laws that regulate and guide the current activities of all units of state administration.

It is even more important, however, that the necessary objective and subjective conditions for plan implementation be present. In this connection only those sections of the plan that relate to processes of socio-economic development regulated by the state should be given the status of government directives.

2.3.7. Conveying Plans to Operational Units

Together with many other conditions, successful implementation of a plan presupposes all the programmes and subprogrammes contained in its various sections, and its specific planned tasks be firmly assigned to corresponding operational bodies. In other words, assignments that are fully specific in their qualitative, quantitative, and scheduling aspects must be conveyed to individuals and organisations concerned with plan execution.

It is desirable to establish precisely already at the stage of plan development which operational units could execute

this or that of the plan's tasks. A final assignment of plans and tasks to operational units and a communication of planned objectives and tasks to those particular administrative and economic units that will be asked to implement them is then effected following the official adoption of the plan by the appropriate state body.

This implies above all that the national plans of developing countries must be divided into clearly formulated nation-wide sectoral programmes associated with central ministries, and regional programmes associated with the corresponding regional agencies of state power. Sectoral and regional programmes are then assigned by ministries and regional bodies to operational units, and above all to state enterprises and organisations.

The specifying of operational units for plan implementation also implies that the addresses possess all needed prerequisites for discharging the corresponding assignments. In short, the use of address-oriented forms of such assignments presupposes that all necessary material, financial and labour resources be made available.

The specification of addresses is thus a fundamental trait of all objectives and indicators that are subjected to direct planning. Addresses are not needed, of course, for those sections and indicators that are of a purely forecasting nature.

The assignment of functions associated with plan implementation to operational units is an especially important element in the activities of state agencies, all government services and organisations, and enterprises. It may be associated with goal-oriented forecasts of processes of development that only partly lend themselves to regulation. In each of those cases, of course, the manner in which functions are allocated will differ. In particular, state organisations and enterprises must receive clearly formulated tasks specified in quantitative terms whenever possible. This is also true of investment and production programmes of those largest private firms whose activities are incorporated into the overall national plan, providing, of course, that the state and the firms themselves are in a position to implement such programmes.

The specification of addresses for state programmes often makes clear the need to carry out specific organisational reforms within the state sector, and in particular to establish special organisations responsible for implementing par-

ticular sections of these programmes or else specific projects. This also creates a need for a more precise and a more comprehensive justification of projects and for making available to such organisations all resources needed for plan implementation.

The indication of addresses for goal-oriented forecasts within a plan implies above all the identification of both those sectors and spheres of social and economic activity whose development will be stimulated by instruments of state economic policy and of those areas and spheres whose development will be constrained. This will serve to suggest concrete measures and instruments of state policy that may create the most favourable conditions for realising the goal-oriented forecasts planned. Specific plan assignments will be effective when, aside from identifying the specific operational units that will carry them out, they are also of a directive nature. In principle there exists an organic linkage between an orientation on addresses and a specification of directives.

The association of goal-oriented (normative) forecasts within the plan with addresses also carries elements of orientation on directives, at least in the form of a system of juridical and administrative norms, as well as measures for regulating those aspects of the country's economic life to which the forecasts refer. At the same time such forecasts are fundamentally of an indicative nature, i.e. they lead to recommendations, and it is in this respect that they differ fundamentally from plan assignments.

2.3.8. Political, Economic and Organisational Measures for Assuring Plan Implementation

The implementation of a national economic plan is not a process that follows automatically from the very existence of such a plan. Specific measures for controlling and regulating the processes being planned must first be drafted and then carried out. The planning subject, in short, should possess specific means and methods for influencing the processes being planned, or, more specifically, the subject participates in the process being planned.

The execution of national plans requires that special programmes of political, economic and organisational mea-

asures be designed and implemented. Programmes for guiding the process being planned are an important component element of the plan itself.

✓ The need for special measures concerned with plan execution derives from divergences in the interests of subjects participating in economic processes being planned on the one hand (i.e. of individual units within the state administration, agencies, and enterprises) and the directions and tasks of development established by the plan.

✓ A full achievement of all plan assignments, and hence of the plan as a whole, is most likely in those cases in which there exists a coincidence of interests of participants in the process being planned and of those of society as a whole that are embodied in plan assignments. There is a need, accordingly, for creating an interest on the part of all participants in the processes being planned and in fulfilling plan assignments. This is one of the necessary conditions for the effective planning of socio-economic development.

✓ Two forms that may be taken by such an interest may be distinguished. The first is of a moral nature rather than directly economic, since ultimately the nation-wide tasks that are carried out in a planned manner contribute to the meeting of needs of the major part of the country's population. An important role in increasing such elements of common interest may be played by a relatively well presented and well thought out programme of information addressed to the population concerning the tasks of planning together with an explanation of ways in which the achievement of planned objectives corresponds both to personal and general national interests.

✓ The second form is directly economic in nature. It refers to the utilisation of various means and levers of economic policy as well as administrative measures to simultaneously encourage economic activities that contribute to plan implementation and to the achievement of planned objectives and discourage activities that do not contribute to or impede the execution of plans.

✓ Examples of measures serving to encourage plan execution include the granting of bonuses to persons in state administration, state services and firms for active contributions to the execution of plans and assignments, the granting of taxation advantages to private entrepreneurs whose activities contribute to plan implementation, and the establish-

ment of higher prices or alternatively subsidies for the outputs of those production activities that the plan seeks to encourage.

Political, economic, and organisational measures relating to plan implementation must be many-sided and encompass all aspects and conditions of the functioning of the processes being planned. A system of measures is needed whose elements do not contradict each other and are also sufficiently effective to be able to stimulate all participants to carry out plan assignments fully and on schedule.

Of course, the actual outcome of such measures depends even more on the extent to which the objective and subjective prerequisites of planning are in fact present. The measures that are intended to produce plan implementation are vital elements of such plans. Programmes embodying such measures may include the following:

- 1) plans relating to the activities of all state economic agencies and services that have been assigned specific tasks in implementing the plan (for example, to set aside funds to finance state capital investments);

- 2) an operational plan to carry out measures of economic policy and administrative measures concerned with plan implementation (elaboration procedure, identity of responsible agencies, schedules);

- 3) operational plans of state enterprises and services directly engaged in economic activities relating to plan implementation.

Thus the elaboration of national plans continues even after their approval by the highest organ of state power through the addition of further details and the formulation of operational plans and programmes for all economic units that the plan encompasses. An important element of such operational plans and programmes is a system of concrete measures relating to their implementation, whose nature and content vary for different administrative and economic units.

Together with the corresponding ministries and other bodies the central planning unit elaborates the basic objectives of state economic policy during the planned period and specifies the addresses of operational units. Central ministries and local state bodies may then follow the recommendations of the central planning units for subordinate organisations and enterprises in developing a system of still

more specific organisational, administrative and other measures concerned with the implementation of corresponding sections of their programmes.

Having received from central ministries and local state bodies a list of the sectoral and regional measures relating to plan implementation, all subordinate government agencies, organisations, and enterprises elaborate similar measures, in turn, within the context of their own operational plans and programmes.

The degree of complexity attaching to such programmes in developing countries is determined by the specific characteristics of their socio-economic structures and by the need to rely on levers and methods of regulating economic activities that are appropriate for multiple-formation economies.

Depending on the content of plans and the extent to which they encompass individual aspects of the reproduction process, and also on the actual role of individual economic formations and types of economic units within a country's economy, programmes for regulating economic activities should include measures that would reduce the intensity of autonomous factors of development that do not lend themselves to regulation and that will ensure the development of the national economy in directions that conform to the plan's objectives.

It is especially important to create a co-ordinated system of measures for bringing about an implementation of plan assignments at all levels of state economic activity. In this regard a major role is played by organisational and economic measures that include the creation of new organisations and enterprises, the adaptation of existing ones for the fulfillment of corresponding sections of development programmes, and also the preparation of a diversity of documents and instructions directing all state organisations to act in conformity with the plan.

An important role may be played by a system of material and moral incentives designed for each category of civil servants, organisations and enterprises. These are aimed at achieving a timely and effective implementation of plan assignments and are directly linked to the outcomes of specific types of activities assigned to individual officials and enterprises.

In many developing countries the economic and organisational autonomy of many enterprises and organisations

✓ represents a serious obstacle to the effective implementation of programmes for developing the state sector. For such organisations are then able to formulate their own strategic and tactical decisions concerning economic activities independently of policies pursued by national plans. A centralised planning of the development of the state sector thus also requires a centralisation of its organisational structure. To carry out such a centralisation while maintaining operational and tactical autonomy on the part of enterprises is an important task of plan implementation programmes.

In the case of programmes concerned with regulation activities relating to goal-oriented forecasts concerning the development of the private sector and of external economic relations, a greater role is played by measures relating to taxation, credit, external economic relations, industrial development and agriculture. On the one hand, they influence the conditions in which the activities of the private sector take place, but at the same time they also influence the activities of the responsible state agencies and organisations.

✓ For any private enterprise the principal activity-inducing mechanism derives from its pursuit of private advantages which in the case of capitalist enterprises take the form of profits. The most effective means of economic regulation are therefore those that influence the revenues of private enterprises either directly or indirectly. The corresponding measures include taxes, accelerated depreciation schedules, credit policies, prices for electricity, transportation and other types of services supplied by state enterprises, regulation of marketing activities, and measures that provide for the stability of the prices of the output that is produced in accordance with the plan.

✓ Measures of direct regulation and control should complement differentiated economic regulation, in constituting an integrated system of state measures to realise those goal-oriented forecasts for the development of the private sector that are incorporated into national plans. It has been the experience of many developing countries that attempts to plan the development of private sectors with the help of indirect economic incentives alone are ineffective. But it would be equally mistaken to rely exclusively on administrative measures.

2.3.9. Control over the Course of Plan Implementation

A continuing and objective control over the course of plan implementation together with periodic evaluations of outcomes is one of the major conditions of success in national planning. A particular system of control is appropriate for each type of plan and for each section within a plan. The preparation of such systems is an important activity of planning bodies.

Operational control over the course of plan implementation seeks to identify the actual state of affairs and corresponding deviations from planned targets as well as to take measures to overcome undesirable phenomena. Well organised operational control over the implementation of a programme of state economic activities facilitates improvements in such activities and increases their responsiveness to planning, and also imposes appropriate forms of discipline over officials as it increases their responsibility for carrying out such programmes.

Operational control over the course of plan implementation requires that systematic progress reports be available from subordinate organisations concerning the actual course of development. The content of such reports should correspond to the relevant sections of the plan. This makes it possible to compare the actual trends with planned indicators.

Individual enterprises and organisations forward their reports to regional state bodies and corresponding ministries. There the reports are processed, generalised and forwarded to the central planning body, together with an analysis and recommendations. The frequency with which such reports should be prepared at various levels will vary. They should, however, produce a sufficiently operational form of information so that timely adjustments may be made in both the plans and the necessary measures.

The analysis of such reports constitutes one of the major methods of control over the course of plan implementation. Thus the preparation of progress reports in accordance with directives from administrative bodies and with legislative acts is usually mandatory. In order to facilitate comparisons with plan assignments it is desirable that they be pre-

sented in terms of a standard format corresponding to the plan's content and objectives.

An important means of operational control over the course of plan implementation is provided by special sample surveys carried out jointly by planning and statistical bodies.

In the case of major planned projects it is desirable that special periodic inspections be carried out of the extent to which they are being implemented.

Control over the implementation of particular sections of the plan must be assigned to the corresponding state bodies. Functions concerned directly with verifying plan implementation are usually entrusted to the planning unit within that body. Responsibility for the overall organisation of control activities (as well as for carrying out the corresponding sections of the plan) should be assigned to the leadership of the corresponding state agency. This serves to integrate control activities with plan implementation thus creating a necessary condition for the success in planning activities.

Progress reports on plan implementation make it possible to prepare periodic summaries of intermediate outcomes. In the case of medium-term plans such an analysis at the overall national level is usually needed once a year.

An important aim of such analyses is to establish the extent to which actual trends of development conform to the plan's objectives and indicators. But this is only the first stage of such analyses. Next the major factors and motive force that determine actual trends are identified. This serves to establish the extent to which these trends represent outcomes of plan-implementation programmes or are attributable to other, autonomously operating factors, or else still other circumstances. It is particularly important to apply this procedure to processes that do not lend themselves to direct regulation by the state and that are therefore not planned in the strict sense of that term, but rather forecasted.

At this stage an analysis of causes that bring about the deviation of actual development from planned development, as well as of factors that determine the successful completion of plan assignments is a major objective.

Control activities also include a verification of whether plan assignments and indicators have in fact been forwarded directly to relevant operational units.

The evaluation of progress reports should establish the

degree to which the entire programme of regulation over the processes of development being planned is in fact effective. In a wider sense this concerns the extent to which the entire plan is in fact realistic. In particular, it is important to establish the extent to which lags in the implementation of planned indicators are attributable to an insufficient account of external, non-controllable factors, to errors in planning calculations, and to shortcomings in the system of state regulation of socio-economic processes, as well as of individual measures of economic and administrative regulation.

In summarising current outcomes of plan implementation a major role is played by the *formulation of a system of measures* for correcting deviations of actual processes from those that have been planned.

Together with the preparation of final accounts concerning the implementation of medium-term plans of development current progress reports on the implementation of plans make it possible to accumulate analytical data that will be useful in formulating and implementing subsequent plans, with due account of both positive and negative results at all stages, ranging from the initial preparation to the full realisation of the plan. Relevant types of activities include improvements in the informational and statistical base and in methods for developing plans, the organisation of activities concerned with carrying them out and controlling plan implementation, and the identification of measures for regulation of the socio-economic processes by the state that are appropriate to the plan's tasks and objectives.

3. PLANNING INDIVIDUAL ELEMENTS AND STAGES OF THE REPRODUCTION PROCESS

Depending on the approach to planning that is selected, planning may begin at the macro-economic level or else at the lowest level, namely, that of a specific project or sector, followed by a gradual ascent to the level of aggregate economic indicators (cf. 2.3.5).

The nature of planned indicators is defined by the specific conditions that prevail within the given country, and by the economic and social tasks that it is proposed to solve through planning.

Both in developing an overall national plan encompassing all major elements and aspects of the reproduction process, however, and in developing a partial plan (such as state investment programmes, for example, or else programmes for developing extractive industries) the persons preparing the plan must recognise the objective properties of the process of reproduction and the requirements that follow from them with regard to achieving an internal consistency of the plan (cf. 2.2.1).

In meeting this vital methodological requirement persons preparing both national and partial plans must inevitably take into account expected prospects, as well as the actual state of development of all elements of the planned reproduction process.

Since this study is concerned with general principles and seeks to encompass a diversity of conditions and tasks of planning that may exist in developing countries as a whole, the present section, which refers especially to medium-term plans, will consider the methodological aspects of all basic

elements of planning (both at the macro-economic and the sectoral level) and all stages of reproduction (production, distribution, and consumption). In many cases developing countries plan only a part of the major elements or stages of reproduction, while others are reflected within plan calculations in the form of forecasted indicators.

3.1. AGGREGATED ECONOMIC INDICATORS

Nearly all aggregated economic indicators in developing countries, as well as indicators describing economic proportions at the macro-economic level, are usually based on forecasts. This is true of both accounting and instrumental indicators. This is because development is influenced both by processes that do lend themselves to regulation by the state and others that do not. Only those indicators that are related directly to the state sector of the economies of developing countries (for example, the scale of accumulation within the state sector and the volume and rate of growth of gross product attributable to the state sector) may be viewed as planned rather than forecasted indicators. Even this, however, is only sometimes true and within certain limits.

3.1.1. The Size and Composition of the Population

To a considerable extent the size and composition of the population depends on political, social and economic conditions. In most developing countries demographic problems are attributable to relatively rapid rates of growth in population and limited possibilities for employment on the one hand, and also to the required minimum means of livelihood, and more generally, the minimum satisfaction of needs, on the other. An estimate of the probable size and composition of the population is a problem of major significance in establishing the general prospects of developing countries. In individual cases the availability of reliable data may make it possible to carry out measures that may partially influence the size and composition of the population, or else determine long-term directions of social and economic development that will provide for the fullest possible and most rational utilisation of labour resources.

Establishing the long-term size of the population is a purely forecasting activity relating to the identification of exogenous conditions bearing on the preparation of a plan. At the same time in the case of developing countries the elaboration and implementation of measures concerned with regulating the size and composition of the population is one of the most important economic and social aspects of planning activities.

In forecasting the size and composition of a country's population preliminary studies are made to establish the most probable hypothesis concerning the dynamics of birth rates and death rates and internal and external migration. An important consideration concerns the time period to which the plan refers. The longer the forecasted period, the greater is the probability of deviations between forecasts and natural demographic indicators. There are cases, however, in which it is desirable to forecast the size and composition of the population for several decades ahead, even though the plan may extend to only a few years. This is because the outcomes of demographic policies and of socio-economic measures concerned with the regulation of the size and composition of the population and also with achieving particular levels of income and of consumption by the population as a whole (or else of individual social groups within it) usually become evident over periods of time that exceed substantially the duration of medium-term plans.

In practice, forecasts of the size and composition of the population are based on assumptions concerning the continuation of existing birth rates and death rates. Of course, especially when it refers to long-term forecasts, such hypotheses often turn out to be quite different from reality. In order to arrive at forecasts of the size and composition of the population that are more accurate it is sometimes necessary to employ adjustment coefficients. These are obtained by studying long-term demographic trends in countries that have attained a relatively higher level of socio-economic development. But in such cases difficulties may derive from differences in the methodology employed in collecting data in individual countries, for this may make data incommensurable both in their territorial and in their time aspects.

The demographic data that are used most widely for planning purposes include the size of the population (at a given

time or else its average yearly size), its sexual and age composition, the territorial distribution of the population and also its distribution among cities and rural areas, birth rates, death rates, net births, average life expectancy, emigration, immigration, and its automatic increases, as well as the division of the population into able-bodied and non-able-bodied groups.

Without demographic data plans of socio-economic development are largely meaningless, since economic activity is ultimately concerned with satisfying the material and spiritual needs of persons.

Demographic forecasts and calculations are needed to calculate four groups of indicators relating to overall plans of socio-economic development.

The first group includes indicators describing the availability of labour resources, their utilisation (employment), and the training of labour at all levels, ranging from primary school education to professional training in specialised secondary schools and institutions of higher learning.

The second group reflects the extent to which the population is supplied with consumer goods, including food, industrial products, consumer durables, and a diversity of services.

The next group includes indicators associated with construction activities both in cities and rural areas, the development of all types of service infrastructures, and passenger transportation services.

The fourth group is still more diverse. It largely refers to the extent to which particular social problems are overcome and includes the development of the so-called social infrastructures and the level of pension payments.

3.1.2. Rates of Economic Growth. Production-Distribution-Consumption

Rates of economic development are determined by the potential of socio-economic systems for an expanded reproduction of the material conditions of social life. In order to plan (or else forecast) these rates it is necessary to consider all conditions bearing on the process of reproduction, both economic and social.

The interaction of means of production (instruments of labour and objects of labour) with labour activities exerts

a decisive influence on rates of economic development. Thus, to the extent that rates of economic development are determined by changes in the scale of production, they depend on the natural resources, instruments of production and labour power that are employed by the labour process. Possibilities for utilising labour power, moreover, depend not only on its skills, but also on the socio-economic conditions governing its existence and on its relation to means of production. At the same time, while factors of production are an important condition determining rates of economic growth they are by no means the only ones. For once it is produced, the social product must pass through a stage of distribution (a realisation, primarily in value form) in the course of which each natural component of that product must find its consumer. Only when a correspondence is established between the physical and value forms of the gross social product and the stage of consumption is reached is the reproduction cycle concluded and a stable rate of economic growth assured. Yet the distribution of social product depends not only on the organisational and technical possibilities that attach to the entire distribution network concerned with conveying output to consumers, but also on the particular principle that is employed in distributing the gross product and incomes that characterise the given socio-economic system. This is precisely the reason why possibilities for economic development are constrained under capitalist conditions, and why capitalist economies periodically experience crises and declines in production generated by those methods of distributing the resulting social product and incomes that are specific to capitalism.

Thus, from a methodological point of view, the problem of planning rates of economic growth may be reduced to the solution of three mutually dependent problems:

- 1) identifying and estimating possibilities for developing production;
- 2) determining possibilities for distributing the resulting social product (its realisation, primarily in value form) *;
- 3) establishing the correspondence between production and consumption for the entire physical composition of the gross social product.

* Except for that part of the product that is distributed outside the sphere of commodity-money relations, or else consumed directly by the producers themselves.

In other words, the planning (or else forecasting) of rates of economic growth encompasses both a determination of the joint operation of all factors of production, and an identification of all factors that influence the effective demand for each physical part of the social product, as well as for the overall social product.

In principle, rates of economic development may be measured in three ways: in terms of the production, or distribution, or else consumption of the gross social product. In practice, for purely statistical reasons, data relating to the production of the gross social product or else to its consumption (utilisation) are employed. Because external economic linkages usually exist the consumed gross social product may not coincide with production within the country, for imports and exports of goods and services may not balance each other.

Aside from indicators describing the rates of growth of gross social product statistical measures and planning practice make wide use of indicators that describe rates of changes in the individual components of gross social product, including industrial production, agricultural production, the production of means of production, and the production of consumer goods and also the levels of consumption and of accumulation.

The determination of possible rates of growth in the gross social product expressed in aggregate form is reduced to an identification of the manner in which various factors of production jointly influence its volume (or else rate of growth) during the planned period. Mathematically that problem is solved with the help of specific production functions (models of growth). Generally the volume of production depends on the following factors: 1) the quantity of live labour that has been expended; 2) its productivity; 3) and the natural resources that have been utilised.

Expenditures of live labour are determined in a relatively simple manner, for they are directly proportional to the quantity of labour resources engaged in production and the duration of labour activities. It should be noted, however, that the relations of labour expenditures to output are seldom directly proportional. Such a proportionality is present only in those cases in which variations in labour expenditures do not influence its productivity and when the factor contributed by nature, i.e. natural resources, remains con-

stant. At the macro-economic level such conditions are almost never met.

Calculations of the effect of labour productivity, on output, on the other hand, are appreciably more complex, for labour productivity itself depends on the joint influence of a large number of conditions.

Accepting a certain measure of simplification the following groups of factors and conditions influencing labour productivity may be listed: techno-economic factors, organisational factors in the economic sphere, and organisational factors in the social sphere.

The first of these, namely techno-economic conditions and factors, include the technological intensity of labour, the nature of the equipment employed in production, and the technology of production.

The second group of factors encompasses issues relating to the general organisation of production from the point of view of its spatial distribution, specialisation, and integration, as well as the internal organisation of labour at the level of enterprises. This includes the extent to which the organisation of production contributes to the full utilisation of available capacities.

Finally the third group, namely, socio-economic factors, includes general social conditions bearing on the reproduction of labour, on its existence and on labour activities. One of the major factors within that group is the degree to which professional and general skills of the labour force do meet the needs of technological processes and of the equipment employed in production.

The absence of needed information and the still inadequate state of applied scientific knowledge in this area do not make it possible to establish a direct dependence between these factors and conditions. Other indicators are currently employed instead, such as the magnitude of basic capital employed in production (in value form), i.e. the value of basic capital goods. Such calculations are relatively feasible in terms of the available information. It is assumed that the major factors of production influencing productivity are adequately expressed by the value of basic capital assets employed in production and that the nature of the functional relation between the value of basic capital employed in production and the volume of output itself (the elasticity of production of basic assets) may be calculated

on that basis. Since the volume of basic capital does not always reflect those influences on the level of output that are attributable to the achievements of science and technology that it embodies, additional coefficients that seek to reflect these factors must be introduced in the planning and forecasting of rates of growth in output (so-called coefficients of rates of introduction of new technologies).

It is usually necessary to neglect the influence of remaining factors and conditions, or else to assume that it is reflected in the coefficients of elasticity of output in relation to basic capital assets.

It is on the basis of such an approach that the widely known Cobb-Douglas production function is employed in macro-economic calculations (cf. Section 5).

Even greater difficulties arise in establishing the manner in which natural resources influence the volume of production. When applied to the development of individual types of production that problem may be partly solved, although with regard to macro-economic calculations of rates of growth in production it is still to be solved.

While we have listed natural factors as a distinct group, in fact their influence manifests itself indirectly. Depending on the type of natural resources employed, their quality, accessibility and capacity for self-renewal they cause changes in the magnitude of other factors of production. In particular, this affects estimates of needed labour power, of labour productivity, and of the type of equipment and technology that should be employed in production, as well as the spatial distribution of production activities and the required volume of basic capital.

It should also be emphasised that the influence of nature on production manifests itself in other ways besides natural resources. Natural conditions and the ecological environment within which production develops may exert a substantial influence on both the volume of basic capital needed for production and labour productivity. For example, a relocation of production activities in warmer regions may result in a decline in labour productivity or else require increases in capital expenditures for air-conditioning. This is also true of regions in which construction activities must consider the force and direction of winds, rainfall, soil conditions, volcanic activities, and so on.

While a recognition of these factors does not present ma-

major difficulties in planning rates of growth of output and types of output of individual enterprises they must usually be neglected in calculations of rates of development of output at the macro-economic level, particularly when highly aggregated growth models based on production functions are employed. This may result in serious miscalculations and errors in estimating the volume of required factors of production.

We have considered aggregated plan calculations of rates of growth of gross social product. These are particularly important in the early stages of plan preparation. Similar calculations may be carried out at the sectoral level on the basis of sectoral production functions.

In many cases a different approach to such plan calculations may be more appropriate and reliable for developing countries. This refers to calculations relating to individual projects and types of production within specific sectors possessing a relatively homogeneous structure, followed by their aggregation to the macro-economic level. Such an approach may be particularly useful in establishing the rates of growth of rapidly developing industrial production activities. In such cases the planning of rates of economic development is based on detailed calculations that take into consideration the specific features of each sector and of individual large enterprises and planned construction projects, as well as the availability of production resources, the extent to which they are utilised, and possibilities for increasing their volume. Particular attention is given to the introduction of equipment and to improvements in organisation and management as important sources of increased effectiveness.

As in the case of macro-economic calculations, the volume of output of an enterprise or sector is usually established on the basis of major factors contributing to its growth that lend themselves to quantitative measurement. This includes both labour resources and their utilisation, and the volume of capital investments, increments in basic assets, and increases in their effectiveness.

In the case of developing countries combinations of both these methods appear to yield the best results, namely, the macro-economic one based on the use of production functions, and the sectoral and project-oriented method. The second method, moreover, is more applicable to the calculation of that part of rates of development of production that is

directly influenced by planning, while models of growth based on production functions are more appropriate to forecasting calculations.

Increases in rates of economic development and progressive changes in the economic structures of developing countries largely depend on accumulation, although both the absolute volume of accumulation and the rate of accumulation in developing countries are still insufficient to meet their needs for economic development. To support an average rate of growth in output at 5 per cent it is usually necessary to assign 15-20 per cent of the national income to capital investments, while the actual rate of accumulation in a number of developing countries barely reaches 10 per cent.

The low volume of production and level of consumption of the population impose definite boundaries on increases in the volume of accumulation in developing countries and in their rate of accumulation. At the same time, relatively high rates of population growth call for the assignment of continuously increasing parts of national income to maintain already achieved levels in the standards of living, and since it is possible to increase the level of consumption only when production activities are developing, this requires increases in both the volume and rate of accumulation. This is why planning activities relating to the distribution of national income to consumption and accumulation exert a decisive influence on rates of growth of production. In this respect much depends on the role of the state in distributing and redistributing national income and on its utilisation of instruments of economic policy that encourage the accumulation of national income (cf. 1.3 and 2.2.2).

The distribution and redistribution of the part of national income that is assigned to consumption determines the level of personal consumption of individual strata and groups of the population and substantially influences the physical composition of consumption, and, hence, affects the scale, sectoral composition, and rate of development of output.

At the present time, consumption in developing countries possesses a number of specific features that influence both the further development of output and methods employed in planning. To some extent consumption does not depend directly on production, since an important part of personal

demand and also productive demand is met from imports rather than from domestic production activities. Thus composition of consumption is established first and internal production subsequently adapts itself to that composition.

As a result of the so-called demonstration effect, the composition of personal consumption develops and diversifies more rapidly than personal income is able to grow. This is particularly true among those strata of the population whose income are in the medium bracket.

In many developing countries a significant part of personal consumption is also met from natural and semi-natural forms of production. This exerts a negative influence on rates of development of modern forms of production and on opportunities to increase the productivity of labour on a national scale.

Similarly the volume of aggregate internal consumption of commodities and services frequently differs substantially from the volume of gross social product. In certain countries that specialise in the large-scale production and export of petroleum and of certain mineral raw materials gross social product exceeds aggregate internal consumption, while in most other countries, particularly those that are less developed, there is a relatively stable excess of consumption of commodities and services over their internal production.

These characteristics of consumption influence the selection of appropriate approaches to planning and forecasting both rates of economic development and the composition of output.

In preparing plans of social production the final consumption of gross product and the utilisation of national income may be viewed as exogenously given magnitudes that are determined by the strategic objectives of economic development. Desired rates of development and compositions of national output may be inferred in this way with due consideration of available natural and labour resources, possibilities of constructing new projects, the availability of transportation and communication services, external economic relations, and techno-economic decisions. The planning of consumption is then restricted to the intermediate forms of consumption required by production activities.

Considerable difficulties appear when calculations of the rates of growth of all component elements of the aggregate

gate consumption of commodities and services are needed as well as of their composition.

There are important differences in the economic essence and laws that govern the development of consumption of individual parts of the gross social product, and this produces substantial differences in the appropriate methodological approaches.

The calculation of rates of growth and volumes of final consumption needed for planning and forecasting production activities is thus reduced to a problem in planning capital investments (its rate of growth, sectors and its technological as well as physical composition).

In principle intermediate consumption does not influence the magnitude of national income and of gross product, nor does it influence the rates of growth of these indicators. Statistics is one thing, however, and real processes of production, distribution and consumption of the gross social product quite another. Since intermediate consumption does play an important role in this process, disruptions in ensuring intermediate consumption and failures to achieve corresponding balances may strongly influence the entire reproduction process.

Hence, the planning of production activities must also recognise the need for supplying intermediate products. The most general instrument for this type of accounting is provided by intersectoral balances, both in value terms and in physical terms (cf. Section 5).

In developing countries the composition of personal consumption generally does not lend itself to planning and is therefore studied only through methods of forecasting. This is true even though the state's investment and taxation policies, as well as its regulation of prices and imports, do influence consumption of individual commodities to a certain extent. The general composition of consumption depends on many factors of a historical, natural-geographic and social nature, and an important role is played by the level of personal incomes of individual groups within the population. Generally as incomes per capita increase, there is a tendency first to reduce the share of food in consumption in favour of industrial products as well as of personal services, and as the average level of income continues to grow, the share of expenditures on consumer durables and on personal services increases substantially.

In certain countries, however, and at certain stages of their development, one observes major deviations from that general trend, and this makes it difficult to forecast consumption (cf. 3.4.1).

3.1.3. The Structure of Production

The composition of production is one of the major characteristics of an economy. The sectoral composition of production and the extent to which it is diversified reflect the country's level of development in production, while its territorial structure describes the extent to which it is evenly distributed among individual regions. Similarly, the socio-economic structure of production makes it possible to know the level of development of production relations and the extent to which they correspond to the requirements of modern production.

The sectoral, territorial and socio-economic composition of production are important factors influencing the productivity of labour and the effectiveness of capital, and hence the general rate of economic development. The structure of production is determined by a number of major economic proportions, including the ratio of the production of means of production to that of consumer goods, and the relative weight of industrial activities and of agriculture. Plans that determine the structure of production constitute the "skeleton" on which more detailed plans of development of individual sectors and regions, as well as of socio-economic sectors, are subsequently elaborated.

Three groups of indicators describe the structure of production: 1) the relative weight of all individual sectors, regions and socio-economic formations and sectors in the production of national income or product; 2) the distribution of labour resources among them; 3) the distribution of productive assets. These indicators complement each other, and when taken together make it possible to compare individual structural subdivisions of production in terms of average labour productivity and capital effectiveness.

In principle, planning activities relating to the composition of social production seek to establish proportions among individual sectors of the economy and types of output and also select variants of territorial location and socio-economic structure that would be optimal in satisfying the needs of

the population and of the economy to the greatest possible extent (in developing it at maximal possible rates) with minimal expenditures.

In practice, however, the full solution of that problem encounters very substantial difficulties.

The tasks of simultaneously maximising the consumption needs of the population and providing high rates of development of the economy are internally contradictory. When planning the distribution of national income it is necessary either to favour consumption and thus increase the population's standard of living, or else to favour accumulation and hence higher rates of economic development. Solutions to the problem of a full optimisation of that fundamental national economic proportion have not yet been found (cf. 2.2.2).

Sufficiently reliable and feasible models for optimising the structure of output have not yet been designed either. In the case of developing countries, moreover, such models could not be supplied with sufficient information.

Only some elements of the structure of production lend themselves to planning and regulation by the state in developing countries. It is therefore appropriate to speak of forecasting approaches combined with certain elements of planning. Certain theoretical studies of planning suggest that a basis for planning the composition of production is provided by a "complex and balanced" development of the economy. But as a rule such recommendations are not accompanied by further explanations, and therefore cannot contribute to practical requirements of planning.

If the word "complex" refers to an orientation on the development of all types of modern production, then the very formulation of such a goal in planning is quite unrealistic, particularly as increasingly comprehensive forms of international division of labour develop and as rates of progress in science and technology increase. If, on the other hand, it refers to a particular complex of sectors and types of production that should be created in the light of existing conditions, then, again, it represents an endorsement of a meaning of "comprehensive" development that does not possess specific contents and does not specify means for achieving it, and is therefore of no practical use. It is true, of course, that a balancing of processes is a requirement of all stable forms of economic development, but the content,

forms and conditions of balancing are always specific.

These observations indicate that in developing countries the planning of the composition of production must be solved through a sequence of partial decisions, each of which seeks to consider all factors influencing its development.

Changes in the structure of production and especially its radical transformation that developing countries require call for long periods of time that exceed both those of medium-term plans and occasionally even those of long-term programmes. These are strategic problems that can only be partly solved within each plan of socio-economic development. It is therefore appropriate to identify three levels at which such decisions should be carried out:

- 1) the development of strategic objectives in reorganising the structure of production, with due regard for all factors that influence this structure;

- 2) the identification of problems that can be solved within the framework of a given planned period on the basis of available resources and techno-economic expediency;

- 3) the development of a model of a structure of production over the planned period (usually this refers to the year preceding the planned period) and the balancing of planned decisions and forecasting calculations relating to the restructuring of production.

Let us turn to the major factors that influence the sectoral composition of production and also the general approach to its development in the case of developing countries. (Methodological problems relating to the development of the territorial structure of production are examined in Section 4, which is concerned with territorial planning.)

The composition of consumption. In the preceding section (cf. 3.1.2) a number of specific features relating to the evolution of consumption in developing countries were considered, together with its relation to the structure of production. This interdependence may be described approximately as follows: the higher the level of development of a country's productive forces and the degree of diversification and integration of its economy, the stronger is the influence of the composition of consumption and productive consumption on the structure of production. The existence of substantial exports of commodities and services reduces the influence of internal consumption on the structure of production. The direct influence of internal consumption on

the structure of production activities is greatly reduced, especially in those developing countries that possess a low level of economic development, or else specialise in some single crop.

Rates of economic development. Other conditions being equal, increases in rates of economic development call for increases in the share of accumulation in national income, accompanied by reductions in the share of consumption and increases in the share of production of means of production within the overall volume of output. And conversely, a reduction in rates of economic development in short-term plans produces increases in consumption. Because of the linkages between consumption and production mentioned earlier, however, the influence of such structural shifts does not always affect the structure of production.

Natural resources. Natural-climatic conditions and natural resources have always been an important factor in the development of production activities. Because of historical features of the developing countries' position in the world capitalist economy, natural factors play an important role in influencing the structure of their production.

The participation of countries in the international division of labour. The international division of labour is a particularly important factor influencing the structure of production. The role of a country in the international division of labour is determined by the influence of the relative level and composition of its national expenditures on producing individual commodities, and by the extent to which the international division of labour in which it participates is rational and contributes to increasing the economic effectiveness of production activities.

The developing countries will be able to benefit from all advantages that derive from an international division of labour only when they will participate in it as equal partners with all countries. Only then will this division encourage the development of types of production that are economically most effective and accelerate the process of internal accumulation, thus contributing to the individual countries' economic growth.

Resources of labour power and capital as a constraining factor in economic development. Existing proportions between available factors of production, and in particular between labour resources and capital, are likely to influence

the structure of production substantially by encouraging either labour-intensive or else capital-intensive forms of production. In developing countries the possibilities for economic development are generally limited by capital resources, while labour resources are present in abundance. Yet decisions to encourage labour-intensive types of production activities are not always made. Considerations of prestige and also responses to the demonstration effect together with a striving to acquire a capacity to compete in new types of production, particularly in the state sector of the economy, sometimes lead to selections of capital-intensive types of production that are unjustified (cf. 2.2.4).

The social productivity of labour and the economic efficiency of production. The level of labour productivity in a country and the efficiency of social production depend on the structure of production as well as on such factors as the nature of the natural resources that are employed, the capital-intensiveness of production, correlation between labour-intensive and capital-intensive production activities, and forms of participation in the international division of labour. Improvements in the structure of production that seek to increase the productivity of labour represent a very complex problem. For possibilities for the further development of production depend not only on the quality of the natural, labour, and other resources that are available, but also on the operation of general principles that govern the social reproduction process, and on the need to create appropriate conditions not only for production itself but for the realisation and consumption of all parts of the gross social product in its natural form and in its value form. This requires a balanced development of the economy in which intersectoral relations and growth in output are accompanied by increases in both personal and production-oriented consumption. The correctness of such an approach to the reconstruction of a sectoral structure of national output has been confirmed by the experience of many developing countries. The development of industrial production and the industrialisation of the economy are necessary conditions for overcoming economic backwardness and achieving independence. But an one-sided overemphasis on industrial development and its unanalysed implementation at the cost of sacrificing agricultural development may lead to a disruption of the reproduction process. For the effec-

tive demand of agriculture and of a substantial part of the population for industrial products may not correspond to the level at which they are produced. A similar situation will develop when disproportions exist between the development of industry and that of transportation services. This, too, causes interruptions in the realisation of industrial output.

The construction of intersectoral balances offers a practical instrument for balancing production activities. They provide for a co-ordination at the macro-economic level of the production and imports of commodities, on the one hand, with personal and product-oriented (final and intermediate) consumption and also exports.

Planning activities relating to the socio-economic structure of production play a large role in increasing the productivity of labour. In particular, the state's economic policy and its active participation in redistributing national income and mobilising financial resources for accumulation, together with its direct economic activities (particularly in the sphere of material production and in the creation of an economic infrastructure) play a decisive role in reorganising the social structure of production and in gradually overcoming semi-natural and natural forms of production and also small-scale commodity producers.

The experience of most developing countries has shown that today the overcoming of their economic backwardness and the development of a structure of production that could serve their national interests cannot be achieved effectively either on the basis of pre-capitalist formations or through the development of private capitalist enterprise. They depend increasingly on state economic activities, instead. This is especially true of extractive industries, of highly capital-intensive sectors of the processing industry, and of various types of infrastructure.

Specific proportions between the production activities of the state sector, on the one hand, and the sector of private capitalist production, including foreign capitalist production activities, follow from the selection of a particular socio-economic course of development and from the nature of the corresponding measures of the state's economic policy.

In countries that follow the non-capitalist approach to development (countries pursuing a socialist orientation) the

entrepreneurial activities of private capital are constrained by the state which gradually acquires commanding positions within the economy. A major contribution to this process is the creation of a state sector within the sphere of material production and in economic infrastructures, as well as by its growing role in credit and banking institutions, in the sphere of external trade and currency operations, and in other areas exerting a major influence on the process of distribution and utilisation of gross social product and national income.

3.2. PLANNING THE PRODUCTION OF COMMODITIES AND SERVICES

Production plays a determining role in relation to the other stages of the process of social reproduction, namely, exchange, distribution and consumption. From the point of view of the forms of mutual interdependence that exist between production and various types of consumption, social production may be divided into the production of means of production and the production of means of consumption. Taken together these determine the physical volume of gross social product.

The production plan includes plans for developing individual sectors of material production (industry, agriculture and construction activities), as well as the transportation of freight and other elements of economic infrastructure. The sections that follow will consider major methodological issues relating to the planning of agriculture, forestry, and fishing, industrial activities, economic infrastructures, tourism, and the communal (urban) economy. In each case plans of development of these sectors represent its "production programme" in a wide sense of the term "production" which includes the production of services.

The production programme determines the structure and volume of a country's national income on which the volume of capital investments and also the revenues and expenditures of both the state and population depend. Such a programme therefore plays a decisive role in determining the rate of reproduction activities and increases in the population's welfare. The production programme is closely linked with all sections of the plan. The scale of production activities depends directly on the productivity of labour and

the size of the labour force, as well as on the volume of capital investments and already available basic assets. It is especially important to link the production programme with the planning of technical progress. The incorporation of advanced technical achievements into plans concerned with the installation of new equipment exerts a substantial influence on the sectoral structure of production, as well as on the quality of output and on basic economic indicators.

While planning of production sectors reflects specific features that exist within individual sectors, there also exist a number of general principles bearing on the preparation of the production plan.

These derive, above all, from the so-called objective function of planning, i.e. from the need to subordinate production to meeting the major political, social and economic tasks of national development. The goal-oriented nature of the production plan consists not only in formulating in it the major social and economic tasks but in tying them in with the available possibilities for mobilising economic and social resources.

The first major principle concerns the study of social needs and the determination of means for satisfying them, with due account of contemporary requirements.

A second principle concerns the identification of available resources, including production capacities, labour resources, raw materials, other materials, and fuel. In each case not only the volume but also the structure of resources is considered, as well as the technical characteristics of machines, the level of skill of the labour force, and the quality of raw and other materials.

The central task in production planning is to increase the efficiency of production activities and to carry out the corresponding economic policies step by step. This follows from an objective need in developing countries to achieve a gradual transition from extensive types of economic activity to intensive ones.

3.2.1. Agriculture, Fishing

Forestry, fishing and agriculture represent a special type of human activity concerned with the utilisation of *organic* nature, partly in its original form, but largely recreated by man for meeting his most vital needs. This is one of

the so-called primary sectors of the economy and constitutes one of its foundations.

The effect of natural-climatic conditions on the development of agriculture is particularly strong in cases in which the country's general level of development of productive forces and of socio-economic relations is low. Production activities in these sectors are of a seasonal nature. This expresses itself in different ways and with a different intensity depending on the organisation of production and the equipment and technologies employed.

Each of these three sectors possesses important technical, economic and social characteristics.

The role of agriculture in developing countries is exceptionally important, since 60 to 90 per cent of the active population and sometimes more are engaged in agriculture. At the same time the contribution of that sector to the general volume of national production is far lower. This reflects its technical and economic backwardness and its low productivity of labour compared with other sectors.

That "primary sector" is also backward in a socio-economic sense and in many countries it continues to rely on so-called traditional formations. These include patriarchal-communal, feudal and small-scale commodity production. In each case they maintain a simple reproduction whose objective is to meet elementary needs of the producers themselves. This is also explained by the extreme backwardness of the equipment and technologies employed in production.

A part of the output produced within the framework of traditional conditions is realised on local markets and does not leave the boundaries of the local district. This is especially frequent in food production and fishing.

But there also exist agricultural sectors that develop intensively in many countries and possess a national significance, particularly when they produce export-oriented crops (coffee, cocoa, cotton, bananas, citrus fruits, tropical lumber, rubber). Similarly the exportation of fish products has become important to many countries in recent years.

These factors explain the prominence of a variety of private forms of economic organisation within the "primary sector" and the modest scope of state activities. Aside from some individual export-oriented sectors, particularly in countries that have abandoned the capitalist approach to

development, the state sector does not play an important role in the agricultural activities of most developing countries at the present time.

Government control and regulation activities, too, are appreciably weaker in this sector. Even in cases in which export-oriented production is carried out by tens of thousands of small-scale households it lies beyond the range of direct state regulation. The state is then able to partly influence such activities only through the sphere of commerce and finance (by supplying producers with needed means of production, purchasing of their output, and providing loans). A prerequisite for increasing the state's influence on the "primary sector" is a co-operation of agricultural households, and particularly the creation of producer co-operatives. The role of the government is more extensive in the case of forestry, since in many countries major forests are owned by the government. Its functions then also include reforestation activities.

These characteristics of agricultural development produce major difficulties in the preparation of statistical data, most of which is unreliable and based on estimates. In addition, little is known concerning many aspects of socio-economic processes in that sector. This is true even in the case of relatively developed countries. As a result, many principles governing trends in the development of agriculture are still not clarified, and attempts to quantify them are not feasible.

The low level of agricultural production makes it impossible to meet the needs of rapidly growing populations, particularly in the cities. Many countries must therefore increase their imports of food products, frequently at the expense of other tasks of socio-economic development.

Low rates of growth in output in agricultural districts or regions result in relative surpluses of labour. This serves to prolong their economic backwardness and extremely low standard of living, and results in a mass migration of agricultural population to the cities thus intensifying such socio-economic problems as urban unemployment, poverty, and the spread of slum areas.

In many tropical countries an uncontrolled exploitation of forest resources by capitalist firms has produced a state of crisis in that sphere. Reserves of many valuable types of timber in easily accessible and relatively more populated

regions are nearly depleted and reforestation activities are proceeding at inadequate rates.

This has frequently produced serious disruptions of ecological equilibria, such as increased fluctuations in climate, soil erosion, and declines in underground water reserves. In short, conditions of the development of many economic sectors and human life itself have declined. Yet a major part of the forest resources of developing countries are either not utilised at all or else are utilised in extensive ways possessing a low productivity.

National strategies for developing agriculture and fishing activities seek to increase food production for rapidly growing populations. In addition, industrial enterprises create growing demand for agricultural raw materials. Internal sources of such output are needed to improve the external balance of payments. At the same time agricultural production is contributing increasingly to exports.

The desired results may be achieved through measures such as the following: 1) extending the scale of production activities (of land under cultivation, etc.); 2) increasing the productivity of labour (partly through increases in the yield of the major crops); 3) adjusting the structure of production so as to increase the output of more valuable and more productive types of plants and animals. In most countries of Asia and of Latin America possibilities for extensive forms of growth in production are limited, or else fully exhausted, and emphasis is therefore placed on intensifying production activities.

An important means for increasing the output of food products concerns improvements in the sectoral structure of the "primary sector" initiated in the light of the needs of both internal and external markets. In many countries, and especially in those that are not landlocked, possibilities for developing fishing activities make it possible to compensate relatively quickly for an otherwise limited capacity to increase the output of agricultural products that are rich in protein and also to contribute to export activities.

Together with a need to intensify reforestation activities a need to reorganise timber production and to gradually relocate it in more distant areas is a major problem in many countries.

But it is impossible to identify appropriate instruments and methods for carrying out all these techno-economic

tasks without considering the simultaneous needs for solving such wider national social problems as growing unemployment, increasing inequalities among regions and specific strata of the population and unwarranted migration patterns. Many researchers share the view that at least in the initial stages of development, a more rapid development of the "primary sector" may contribute more to the solution of these national problems than can industrial growth. Clearly all types of means and methods should be combined at the national level in preparing balanced strategies of socio-economic development.

It is apparently impossible to meet the problems of the development of agriculture and of many other "primary" branches without overcoming the socio-economic obstacles that lie in its path, particularly the dominance of traditional methods of production. This influences the entire course of socio-economic development in many countries. For example, the limited outcome of the "green revolution" in developing countries is attributable precisely to the fact that it was carried out merely as a techno-economic measure, without affecting the socio-economic foundations of agriculture in appropriate ways.

The reconstruction of socio-economic relations in the "primary sector" includes the replacement of traditional forms of economic activities based on exploitation, the placing of limitations on large-scale land-holding and land utilisation, and an accelerated development of the state and co-operative sectors of the economy. Such reforms meet the interests of the overwhelming majority of the population in developing countries.

Other measures contributing to the overcoming of backwardness include comprehensive programmes of public education, in order to alter traditional forms of thinking and of life among peasantry that inhibit the introduction of modern methods of agricultural production; the creation of state and co-operative credit facilities; fundamental improvements in supplying agriculture with means of production (fertilisers, insecticides, equipment, agricultural instruments); the organisation of a system of state and co-operative purchases of major products of agriculture, forestry, and fishing, particularly when they are destined for export; and the development of rural infrastructures. The creation of large state or else mixed enterprises offers a

particularly effective means for extending production activities of national significance, and especially those that are capital-intensive.

It is impossible to carry out such co-ordinated sets of measures aimed at developing the "primary sector" with the help of the type of traditional measures that have been used by the governments of many developing countries until now. It is also evident that a complex of fundamental transformations and measures of economic policy is needed that follows from an overall national strategy of socio-economic development that contains a substrategy for the development of agriculture.

The development of such sectors cannot be a direct object of state planning whenever private forms of economic activity prevail within which a major role is played by small-scale commodity production and semi-natural forms of production. In such cases direct planning in the sense of various programmes may be applied only to the activities of the state itself in the political, social, economic, organisational and technical spheres, while the actual development of the sectors under consideration simply calls for ordinary studies and also goal-oriented (normative) forecasts. Thus plans that encompass agricultural activities, forestry and fishing rely primarily on forecasts. In addition, they contain "partial" programmes concerning the nature of state activities in developing both these sectors and the economic infrastructures on which they depend.

The assignment of the planning process (including the preparation of forecasts) to particular levels of state organisation, that is to central and local bodies, represents another important problem. In the sectors under consideration, and especially in agriculture and fishing, a continued emphasis on local markets tends to prevail. It is therefore appropriate to carry out most planning calculations and also execute them at the local level, that is, in the context of regional plans and programmes. Studies of these particular sectors, in fact, are generally the primary concern of regional planning (cf. Section 4).

In the case of overall national plans it is important to consider 1) the major aggregated indicators of "primary sector" dynamics expressing the general principles that govern development; 2) forecasts of the dynamics of production in sectors of national significance (above all this

refers to production activities relating to the country's exports); 3) programmes of activities of central state bodies (ministries and autonomous organisations), including sub-programmes: a) assistance to local bodies in developing the given sector; b) economic and administrative organising activities of the state.

These characteristics of the "primary sector" account for the particular difficulties in planning its development that derive from the impossibility or else the very great difficulty of establishing the expected volume of output of small and very small agricultural households and also their needs. It is also very difficult or else almost impossible to evaluate the overall effect of state activities in such sectors (easy loans, improvements in living conditions and in rural infrastructures, technical assistance, etc.).

Three major ways in which the role of the government in the development of these sectors may be increased include: enhancement of the relative role of the state sector, intensification of control and regulation activities over private units within these sectors; and increasing control and regulation activities over their linkages with adjoining sectors.

These measures also lead to an increase in the scale and effectiveness of state activities regulating the development of corresponding sectors. In planning activities this is expressed in a greater importance of direct programmes and in a greater number of goal-oriented forecasts relating to processes that are either directly or indirectly regulated by the government.

An increased role for goal-oriented forecasts in plans concerned with the development of the "primary sector" also results from a greater co-ordination of all forms of state activity within that sector, i.e. from a definite centralisation of such activities. It is important that at each level such activities be subordinated to a common strategy.

One may distinguish the following major stages in planning agricultural production activities (including activities based on the use of forecasting calculations):

establishing the needs for different types of agricultural output;

analysing the current state of individual sectors of agriculture, as well as natural climatic and other factors that may influence the level of agricultural output within the planned period;

designing measures to adapt output to needs, either through increasing output levels or else by altering its sectoral composition.

We will not consider methods employed for estimating needs for agricultural output. Generally such estimates are based on forecasting techniques. In this connection we will merely make two observations.

Most types of agricultural output, and especially food products, are distributed through markets in the form of commodity production and also as the internal consumption by households, thus bypassing markets. The level of consumption of individual types of agricultural products distributed through markets, i.e. the consumption of commodity production, largely depends on the level of prices for these products (cf. chapter 3.4). Both these points should be considered when estimating needs for agricultural output.

In analysing the current state of that sector particular difficulties arise in connection with the need to estimate the influence on agricultural output of changes in such factors as soil fertility, the availability of water resources, and the state of agricultural equipment, particularly in cases in which additional investments will not be made during the planned period for the improvement of these elements.

Comparisons of expected consumption and expected agricultural output make it possible to begin those planning procedures that are particularly difficult in the case of agricultural production, namely, those concerned with the development of measures intended to bring about indicated increases in output.

The essence of such measures will depend on the specific factors that may influence the growth of agricultural production, but in developing countries they may generally be reduced to direct or else indirect assistance from the state in developing particular sectors of agricultural production by way of:

a) initiating (by the state) construction activities to create irrigation and meliorative systems, and programmes to overcome soil erosion, to clear new lands, and so on;

b) supplying equipment to rural households (through instalment buying, renting or other channels) as well as of fertilisers, seeds and other means of production;

c) purchasing and marketing of agricultural output

through state organisations, co-operatives or other types of organisation;

d) encouraging the production of particular types of agricultural output through guaranteed purchase prices, tax advantages, subsidies, and easy credits;

e) disseminating agricultural knowledge through the organisation of consultation services, exchanges of experience, and free access to specialists by rural households.

It is especially difficult to establish the extent to which such measures will in fact be effective in specific conditions. It is possible, for example, that a system for supplying fertilisers will turn out to be ineffective because village residents do not have the means for purchasing them. It is also difficult to know the extent to which such measures will in fact encourage agricultural production, and especially increases in the share of marketable output.

The planning of agricultural development is thus largely concerned with state activities intended to realise goal-oriented forecasts. It is important to note the complex, systems nature of such activities. Each goal-oriented forecast requires the design of a separate programme specifying an entire set of political, social, economic, administrative and organisational measures.

In principle such measures should encompass all major economic linkages of the sector being planned—in such areas as finance, supplies and distribution. One may consider, in this connection, the system of planned state purchases for major forms of agricultural commodities that had been employed in the USSR in the 1920s and the beginning of the 1930s. Its central element was a commitment on the part of private households to deliver a specified quantity of their output to the government yearly. The government, for its part, supplied to them certain means of production at fixed or else low prices. Deliveries of such products beyond planned levels were rewarded by additional advantages. The extent to which such a purchasing system will be successful, however, will depend on the effectiveness with which the state is able to control the circulation of commodities within the country. For otherwise “black markets” may develop and, together with illegal export and import activities, this may cause such a system to fail.

The lack of success of many governments in encouraging the development of agriculture to follow the specifications

of national plans may be largely attributed to a reliance on insufficiently reasonable measures. This permitted autonomous factors resulting from private activities (other than the influence of natural-climatic factors) to exert a greater influence than partial government measures. The government should be able to limit, when possible, if not overcome altogether, the influence of autonomous socio-economic factors on the development of those sectors for which goal-oriented forecasts are prepared.

The success of such government measures also depends on the comprehensiveness with which a variety of direct and indirect consequences of such measures have been anticipated. Their outcomes also depend, of course, on many circumstances, including the socio-economic nature of the objects being regulated, the country's (and district's) natural-climatic conditions, the weather conditions of the given year, the internal and external economic situation, and the political situation. Specific measures of economic policy may turn out to be effective in relation to small-commodity producers but inadequate with regard to large capitalist firms; others may be successful in encouraging production for the internal market but will fail in expanding exports. Even greater differences exist between measures that are appropriate for state enterprises and those that are suitable for co-operative enterprises or private enterprises. In all cases, moreover, it is especially important to find the right proportions between administrative and economic measures.

3.2.2. Industry ✓

✓ The development of industries is a major factor in accelerating socio-economic progress. It contributes to a transformation of the economic structure of developing countries and to a gradual overcoming of their economic backwardness. As a result, backward agricultural countries are transformed into agrarian-industrial countries or even industrial-agrarian states.

The experience of many developing countries has confirmed that it is practically impossible to develop a realistic plan for industrial development without a strategy based on a scientific analysis. At the same time a good strategy is of little use unless a detailed plan has been prepared for

implementing it. Industrial strategies determine the general nature of the long-term structural changes in an economy that results from industrialisation, as well as their main direction. The general tasks and objectives that are formulated in such national plans are made more concrete in medium- and short-term programmes.

In order to overcome industrial backwardness it is necessary to co-ordinate or at least to consider jointly many processes that may initially appear independent of each other. This calls for a careful co-ordination of a diversity of programmes not only within the sphere of industrial activities but also at the macro-economic level.

Industrial development is not merely a techno-economic task. It is carried out in specific socio-economic conditions and causes some or other changes in these conditions. Planning should consider both these aspects of development.

Developing countries may follow one of two very different approaches to industrialisation. The first is primarily based on the development of the state sector, while the second relies on private capitalist enterprise. In the second case, moreover, one of two methods may be employed depending on the level of development and social structure of the capitalist formation in question: either through a reliance on foreign capital, or else on national private capital. Appropriate distinctions are then made concerning the scope of state industrial programmes and also their form and effectiveness. Other conditions being equal, the most favourable conditions for planning the entire process of industrial development are produced by a commitment to an intense development of the state sector.

The introduction of planning principles into industrial processes produces favourable conditions for planning in all other sectors of the economy as well. In order to realise these possibilities, however, it is necessary that 1) state enterprises be linked to the mechanism of central planning through a system of government administration, and that their activities be sufficiently co-ordinated; 2) that the role of the state sector in industrial production be enhanced not only quantitatively but also qualitatively, i.e. that its weight within sectors of national importance be increased; 3) that the commanding positions of the state sector in industry be strengthened through effective state control over the credit and banking system, as well as over external trade

and foreign currency operations, over movements of capital across national borders, and over the economic infrastructure serving industrial production.

The state's policy in relation to the entrepreneurial activities of foreign capital within the given country is a major element in defining its industrial strategy. Direct foreign, private capital investments are becoming an important factor in the industrial development of a number of developing countries. This often reduces the government's ability to exert an effective goal-oriented influence on the entire process of industrial development, since particularly in the case of multinational corporations many of the corresponding decisions are taken outside the country's borders.

The planning process should carefully consider the positive and negative aspects of a direct participation of foreign investors in industrial development, and for each specific case define a system of measures that seek to reduce all possible negative consequences as much, as possible.

In order to make possible a maximal reliance on foreign capital in solving national tasks while maintaining the state's leading role the governments' general strategy for development should rigorously specify the conditions and limits governing the participation of foreign capital in industrial activities. This may be achieved by establishing mixed state-private firms within which government representatives participate in decisions, together with corresponding policies in the field of taxes, foreign exchange licensing and external relations.

Industrial development should be regarded as an important means of solving major economic and social problems. Clearly, industrial output must develop more rapidly than other economic sectors, if developing countries are to attain economic independence.*

The selection of a sectoral structure of output is one of the most complex aspects of industrial strategies (cf. 3.1.3) that requires a detailed analysis and consideration of the full range of historical, social, economic, and natural-climatic factors and conditions. The level of industrial development that has already been attained, as well as its sectoral structure and existing trends are particularly import-

* This does not exclude the possibility that in particular situations preference may be given to specific elements of infrastructure or the development of selected types of agricultural production.

ant. These trends are largely determined by the nature of the raw material base existing within the country especially during the initial stages of industrial development. Extractive industries are developed on the basis of proven mineral deposits. From the outset the processing industry may emphasise one of two approaches — either the processing of domestic agricultural and mineral raw materials, or else a reliance on imported semi-processed goods and components.

In practice both approaches to development are employed, either simultaneously or else in sequence, as distinct stages of industrial development. In most cases, however, its initial stages emphasise a greater utilisation of local natural resources. This appears to represent one of the basic principles governing the industrial strategies of all less developed countries.

Together with the country's economic potential the planned sectoral structure of industrial output determines both the sequence in which individual sectors are to be established and the degree of concentration of individual activities. It is possible either to simultaneously develop production capacities within a large number of sectors, or to emphasise the creation of a small number of interdependent capacities.

The first of these approaches is more typical of later stages of industrial development, and is also appropriate for larger countries with developed economies. The second approach, which is more appropriate for all small and less developed countries, in our opinion, embodies the well-known principle of selecting a "leading link". It is also appropriate for the industrial development of countries possessing large deposits of some natural resource. The extraction and processing of raw materials or fuel resources (for example, petroleum, bauxite, copper) may long serve as a basis for the gradual development of the entire structure of processing industries.

Successful industrial development presupposes the planned exploration of a country's natural resources. It is very important that the state be able to guide these activities. This requires a nationalisation of the country's natural wealth.

In most newly independent countries agriculture constitutes the initial basis of economic development. Processing agricultural raw materials is one of the major types of in-

dustrial activity, whose significance declines as the scope of industrial production widens. It is also important to encourage the development of sectors that contribute most to an effective demand for other industrial products that may be produced domestically.

An important advantage of such an approach to industrial development is that it contributes to employment through the creation of relatively more labour-intensive types of equipment and technologies, and that it also contributes to export earnings (as the degree of processing of agricultural output increases). The relatively low requirements for capital serve to increase the number of sectors and centres of production being established within any given period, while a relatively rapid turnover of capital and comparatively high returns contribute to the growth of internal savings.

In contrast to this the processing of mineral resources requires more extensive capital investments and usually larger numbers of skilled workers as well—a resource in short supply in most developing countries. Efforts should therefore be concentrated on the development and minimal processing of only the most important and promising types of raw materials. An approach emphasising gradual steps, selectivity, and distinct stages should also be applied to the development of those processing industries that are based on raw material extraction activities.

Usually, the particular types of raw materials and sources of energy that are available in a country suggest the creation of some specific sector of industry. For example, in a country with large petroleum deposits and at an early stage of industrial development these conditions suggest the creation of a modern petrochemical industry.

As processing industries based on local mineral deposits gradually develop, it usually becomes possible also to develop the production of consumer goods on the basis of either domestic or else partly imported raw materials, and thus to reduce the expenditures on the importation of such products from abroad. A greater efficiency of industrial production and an improved structure of it are achieved by developing national domestic raw materials and resources to create additional production facilities that are closely linked in a technical and economic sense (preceding and subsequent links). This defines the problem of utilising available

natural resources in creating specific economic complexes with due regard for their territorial location. Such a combining of the sectoral and territorial aspects of industrial development makes it possible to utilise available raw material and labour resources more fully and more rationally in providing for a continuous increase in the efficiency of industrial production, a continuing improvement in the standard of living in all parts of the country, and a gradual reduction in existing differences in incomes among lagging and more advanced regions (for more details cf. Section 4).

✓ In planning industrial activities it is essential to consider the achieved level of development of all infrastructure elements. Aside from transportation, communications and various energy systems, this also refers to social infrastructures. This includes those centres of professional training that contribute directly to the reproduction of the labour force and also housing, education, general services, health care and social security, culture, sports and leisure. Programmes of industrial development require the support of entire complexes of services that originate in economic infrastructures and within the economy's non-productive sphere (cf. 3.2.3; 3.2.5; 3.4.2).

✓ Since the availability of the required labour force is a major prerequisite of balanced industrial development, plans of industrial development include plans for training workers in particular skills.

Another important factor concerns the current state of markets for distributing the planned output and prospects for their expansion. Generally, the limitations attaching to internal markets within developing countries follow from the presence of semi-natural forms of householding and of small-commodity producers in rural districts, and also from the low purchasing power of the greater part of the population. Past planning experience in developing countries indicates that it is desirable to associate the production of consumer goods primarily with the needs of lowest- and medium-bracket income groups.

✓ A leading objective of industrial development in most developing countries is to expand existing and to set up new enterprises and industries producing import substitutes. This generally refers to a reliance on domestic sources for such industrial products as shoes, textiles and paper products, and later, durable consumer goods that may be produced

partly from imported components (e.g., transistors, television sets, domestic electric appliances, bicycles, passenger automobiles), before extending the range of imports to a growing diversity of means of production. The latter may at first be relatively simple but eventually more complex and may range from rolled metal to individual types of plant and machinery.

Such an approach to industrial development, when it is supplemented by a simultaneous increased reliance on domestic mineral and agricultural resources, is the most effective one.

The experience of many countries has shown that the development of such domestic sectors does not reduce the extent to which a country participates in the international division of labour.

The composition of imports will naturally change and become more diversified. In particular, the new production activities cause a greater demand for new types of raw materials, other materials and component parts. As a result of reductions in imports of those commodities that are now produced within the country, foreign currency earnings become available to cover new types of imports that may include machines, equipment and other investment goods.

The techno-economic requirements of development may call for the creation of enterprises whose capacity exceeds the country's domestic needs. Some of their output must then be exported. An emphasis on exports in order to acquire foreign exchange may be the initial reason for developing new production facilities.

The creation of new sectors and lines of production calls for a most careful analysis of possibilities for marketing the corresponding products and for a long-term forecasting of foreign markets. The problems arising from the dependence of industrial development on exports can be considerably lessened through a co-ordination of activities of countries producing similar items and also of producing countries with importing countries. The need to specialise in some specific sector, particularly in the case of capital-intensive heavy industries, has become apparent to many developing countries. It is therefore important to know when planning industrial development that the country in question also possesses the most favourable conditions for a regional economic integration of industrial activities in that particular sphere.

Finally, the development and utilisation of domestic centres of research and development is another major element of industrial strategies. Developing countries are becoming increasingly aware of this aspect of industrial planning as it becomes apparent that industrial equipment and technologies imported from economically more developed countries are not fully appropriate to local conditions, as a result of which the industrial development that is based on such imports is unable to solve many urgent problems of national development (such as growing unemployment and balance-of-payments problems). Adaptations of imported equipment and technologies and the development of new methods of industrial production that are more suitable to the specific natural, economic and social conditions of developing countries form an important national objective of industrial development.

This is made difficult, however, by major shortages of financial resources and of scientific and technical personnel. This means that research and development activities must first be concentrated on projects that are expected to clearly contribute to industrial development and overall social development. Since domestic research and development activities must inevitably be limited, appropriate forms of either bilateral or multilateral co-operation with economically more developed countries may play an important role.

The development of domestic infrastructures for industrial research and development also calls for a close co-operation among the developing countries themselves. This is one of the necessary conditions for eventually achieving technical and technological independence from international monopolies and imperialist states.

The most industrial sectors require large-scale initial investments, possess high capital-output ratios and require relatively long capital replacement schedules. This is especially true in mineral-extracting industries. In addition, intersectoral and intrasectoral relations generally develop far more rapidly in the case of industrial sectors than they do elsewhere.

The development of industrial production, therefore, requires corresponding forms of government regulation, direct (within the state sector) as well as indirect, that rely on measures of economic and administrative regulation.

Planning increases both the extent to which they are goal-oriented and their effectiveness.

To find the most appropriate and effective forms of such planning, however, is both an important and a difficult problem. For the specific characteristics of individual sectors as well as the technico-economic and socio-economic structures of individual developing countries greatly influence the forms and methods through which its development may be planned.

Industrial plans and programmes form one of the most important sections of general plans of economic development. But it is desirable to prepare independent programmes of industrial development for time periods that exceed those of general plans and even of programmes relating to individual industrial sectors.

The number of state industrial enterprises is continually growing in most countries, as is their economic significance. At the same time the methods and instruments that governments employ to control and regulate indirectly the activities of private industrial enterprises are becoming more comprehensive. They include a reliance on mixed firms in which the state does not possess a controlling volume of shares. In particular, mixed firms offer a convenient means for gradually extending the scope of state economic activities.

Within the state sector itself possibilities for direct planning increase as its scope grows and as it undergoes qualitative changes. But the realisation of these possibilities requires that the role of central ministries in the strategic planning of state enterprises be increased.

The extent to which various activities of state industrial enterprises lend themselves to effective state control and regulation varies considerably. It is easiest to regulate the capital investment programmes and also the organisational activities of central ministries and agencies, including activities in research and development. Operational production activities of enterprises that are closely linked to private economic formations, on the other hand, are least amenable to regulation. A number of effective means of regulation exist for enterprises producing for export, especially when they are governed by long-term international agreements.

In most developing countries, accordingly, concrete plans and programmes may rely on centralised capital investments,

the economic organisational activities of central agencies, and the export-import operations of state enterprises, and include important sections concerning projects that are governed by international agreements. These, too, usually list all three forms of state activity in relation to the industrial sector that have already been noted. Trade and technical and economic co-operation with socialist countries should appear separately, since they are implemented in a specific context, namely, under the national plans of participating countries. Experience has shown that this part of the plan is both effective and reliable.

The specific ways in which state plans reflect private industrial activities vary with the effectiveness of their regulation by the state. Even when they are foreign-owned, large modern enterprises serving extensive markets (domestic or external) are generally more amenable to such regulation than other forms of private industry, especially small-scale production activities of the craft type.

Modern large firms also develop long-term plans as well as operational programmes. When these correspond to national interests, they may be incorporated into the government's general programme of industrial development. The government is usually able to influence their preparation, particularly in countries possessing a developed state sector, in such a way as to adapt them to national interests. But this also requires that the corresponding government bodies prepare and subsequently execute measures to create conditions that encourage their implementation. Since it is only possible to forecast the development of the private industrial sector, goal-oriented forecasts reflect those elements of this sector that lend themselves to regulation.

Because general plans of industrial development represent an organisational form for integrating and co-ordinating all relevant component elements they require a definite measure of integration and balancing. But since the level of internal economic integration and of development of intersectoral relations within industry is still modest in most developing countries, this aspect should not be overemphasised. In many cases this need is largely met through a co-ordination of individual programmes within industrial sectors with those sections of national plans that concern external relations.

The importance of achieving an internal balancing of state

plans in production increases as industrial development proceeds.

These are the characteristics of industrial plans that bear on the methodological requirements of their preparation.

The preparation of industrial plans usually related to three major phases, namely, the design of the sectoral structure of industrial activities, the preparation of sectoral programmes, and the elaboration of individual projects.* Particular emphasis is given to those industrial projects that contribute to the development of the state sector in industry. They include the construction of new industrial enterprises, the expansion and modernisation of already existing plants and factories, and organisational and technical measures within existing enterprises that serve to expand their output. As a rule they all require capital investments, i.e. they possess an investment aspect (cf. 3.5).

Initially *background forecasts*, are prepared that encompass all major trends of industrial development, including the possible dynamics of overall industrial output, of the effective demand and also supply of major types of products, and of aggregate capital investments in industry.

A scientific planning of industrial development requires that the composition of incomes and the structure of both internal and external demand over the planned period be estimated as accurately as possible, while the number of such background forecasts will be limited by the availability of required statistical data and the degree of its reliability. The greater their number the better.

Another stage is concerned with estimating differences between the expected effective demand for major types of industrial products over the planned period and the capacities of traditional means for supplying them (domestic production, imports, accumulated stocks).

Next those background forecasts are selected that reflect processes and trends that are amenable to regulation by the state. Already at this stage a knowledge of available instruments of state regulation and of their relative effectiveness makes it possible to arrive at preliminary goal-oriented forecasts of the corresponding processes and trends. The needed

* See, for example, *The Preparation of Programmes of Industrial Development (with Reference to Countries in Asia and the Far East)*. Report of the Second Group of Experts on Methods for Programming Economic Development, Moscow, 1964.

scope and effectiveness of the state's regulation of the corresponding economic processes will then be reflected in deviations between the background forecasts and goal-oriented forecasts.

Goal-oriented forecasts are inferred from the general objectives and tasks of industrial development that are embodied in the strategy that has been selected for developing the given economic sphere.

The next stage is then concerned with planning calculations proper in the sense of means and methods for carrying out goal-oriented forecasts. This calls for the preparation of programmes of appropriate state measures in the broad sense of that term. These include the design of projects for establishing industrial enterprises, measures to encourage industrial production, required changes in the forms of operation of already existing organisations, and changes in the principles that govern industrial, financial and external economic policy as well as in the corresponding policy instruments. In short, they include all aspects of that policy that bear on industrial development in some way, both within the state sector and in the private sector.

Such programmes must include measures to create the conditions that are needed to carry out goal-oriented forecasts, including the development of markets, the training of skilled labour, and deliveries of raw materials, semi-processed goods, machines and equipment. These measures serve to link industrial programmes with other sections of overall plans of economic development.

In addition, the relevance to national objectives of major projects within a private sector is established, and if appropriate such projects are incorporated into the overall national plan.

Because the most effective means for implementing planned forecasts that is available to the government is an extension of state sectors within the respective industrial sectors, programmes describing the corresponding activities constitute the principal instrument for regulating the course of industrial development. Accordingly, their preparation calls for particular care.

A central element within that programme is the preparation of directives by the central planning body in co-operation with an industrial ministry concerned. These are addressed to all state industrial organisations and request the

submission of relevant proposals for the forthcoming planned period. Such directives represent an elaboration of the particular industrial strategy selected by the state. Their specifications include the major problems that should be solved in the course of the planned period, a list of high-priority production activities, the principles and criteria that will govern the selection of product proposals before they are included into an integrated state industrial programme, and the amounts of factors of production that will be made available.

A programme of state industrial activities is thus developed on the basis of proposals "from below". This is divided into yearly segments. It is important that for the first year or two that programme be relatively detailed, particularly with regard to industrial projects, and that it be supplied with everything needed to prevent disruptions in its implementation, including the implementation of individual projects.

The function of such programmes is to contribute either directly or indirectly to overcoming the original forecasted deviations between effective demand and expected supplies of major industrial commodities, and also to make it possible to implement planned projects and goal-oriented forecasts.

Such is the procedure that is most appropriate, in our opinion, for elaborating state industrial plans in developing countries.

The selection of a strategic "leading link" merely introduces certain adjustments into this scheme. The state must possess definite possibilities for regulating the "leading link", that is, a sector or group of sectors that are given priority. This implies that at the very least the proposed parameters relating to their development must represent goal-oriented forecasts. Implementation programmes are then elaborated and prepared in a way that emphasises the requirements and proposed dynamics of the "leading link". The forecasting of the entire course of industrial development, including that of other sectors, is then based on this particular dynamics. Such strategies are particularly effective when proposed high-priority sectors possess many direct and feedback linkages with domestic industries or else with the economy as a whole, or in which such linkages will be established in the course of planned development. The possibility of receiving substantial and stable revenues from ex-

port activities is then a prerequisite for financing the planned development of direct economic linkages in order to accelerate the country's economic development.

Since nearly every element of programmes of state industrial activities may have a direct or indirect effect on industrial development itself and on that of the entire national economy it is important to estimate all indirect consequences, whenever possible, particularly the negative ones, and to anticipate the counter-measures that may neutralise undesirable results. It is at this stage as well that each of the planned tasks and goal-oriented forecasts is formulated more precisely, as are the major means for achieving them. Already at this point it is essential that the greatest possible measure of internal consistency be achieved. In particular, adjustments of planned estimates governing specific industrial sectors are often made in the light of more realistic knowledge of implementation possibilities.

Balances of production activities and consumption should be constructed for major types of industrial output whenever possible, preferably in both physical and value terms.

Intersectoral balances of industrial output make it possible to adjust the production of each sector with expected consumption. Such calculations become increasingly important as internal linkages within the economy become more complex. They call for an additional type of statistical information. This is possible only in the case of relatively developed countries. When combined with balances representing the production and utilisation of major types of output, they may provide a useful framework for the entire industrial plan (cf. Section 5).

These are the main steps in preparing a national plan of industrial development. The successful industrial development of many newly independent countries, however, also requires that their plans be co-ordinated with those of other members of regional economic groupings. There is a need, in short, for a certain measure of planning industrial development at the intergovernmental level. In the case of developing countries the corresponding possibilities are generally greater in industry than they are in many other sectors.

The methodological basis of regional (intergovernmental) industrial planning is still developing. This type of planning can only be partial in the sense that it may encompass not

all industries within a particular group of countries, but only those sectors in whose co-ordination and joint development these countries are particularly interested.

One of the simplest forms of regional industrial planning is the co-ordination of national industrial programmes for those sectors and lines of production in which a common interest exists. This may avoid the development of unnecessary competitive pressures on the world market, as well as a duplication of production capacities.

Conditions that favour the joint design of projects and joint activities in constructing industrial enterprises of regional significance exist in many regional groupings. Programmes for constructing such enterprises may then later serve as a basis for still more developed forms of regional planning.

This type of planning, however, like wider forms of economic integration, require a certain measure of socio-economic and political unity among all its members, as well as an adherence to such principles as equality and mutual advantage.

3.2.3. Economic Infrastructures

The concept of economic infrastructures refers to a group of economic sectors possessing functionally similar systems and arrangements that *redistribute* the outputs of all other sectors to centres of both productive and non-productive consumption.

Above all these concern different modes of transportation, rail, water, river, ocean, automobile, air, and pipelines.

The economic role of freight transportation differs from that of passenger transportation. While the first is a sector of production and hence clearly a part of the economic infrastructure, the situation is more complex with regard to the second. For the only link of passenger transportation with production is the transportation of workers to places of work and back to their place of residence, and also various forms of business-related travel. All other cases of passenger transportation activities represent non-productive forms of consumption and are more closely linked to social infrastructures. Nevertheless in practice it is very difficult to adhere to such a distinction between various forms of passenger transportation activities. Accordingly they are usually associated with economic infrastructures.

Communications form another major sector of economic infrastructure that includes postal services, telegraph, telephone, and radio communications. Most means of communication represent a system of technical arrangements that carry different types of information over distances. Their role in modern social life is very considerable. While transportation and most other sectors within economic infrastructures may be viewed as the circulatory systems of modern economies, communications may be viewed as their central nervous system. The information that they transmit makes possible the control and regulation activities over different aspects of social life and over different parts of the country without which integrated state organisations and entire national economies could not function as a single organism. An important role is also played by energy systems. These transmit different types of energy (such as electricity, natural gas and heat) from points at which they are produced to points of consumption. Finally, economic infrastructures also include different systems of water supply such as reservoirs, irrigation canals, and water distribution systems.

In effect, all such sectors represent specific types of transportation services that differ both in terms of the technoeconomic characteristics of transportation media and of the objects being transported. Accordingly, economic infrastructures represent a major part of a society's production forces. They have been described by K. Marx as the skeleton and circulatory systems of production.

In terms of their organisational forms elements of economic infrastructures may function either as organisations and enterprises serving any clients (so-called general service infrastructures) or as a component of large industrial or sometimes agricultural and commercial enterprises (i.e. as "internal" infrastructures). In the second case they generally serve the productive needs of the corresponding organisations. Large industrial enterprises often possess their own railroad branches and freight cars, their own trucks, cable cars, various pipelines, power stations, and even communication systems, particularly in the case of extractive activities.

Elements of economic infrastructure may also be divided into *specialised*, or sectoral, and *universal*, depending on the objects that are being carried. In the first case only specific products are usually carried that originate either in

one sector or else in several closely associated sectors. This may refer to the transmission of electrical energy, of natural gas and petroleum or of water for irrigation or other purposes. The development of tourism produces specific forms of transportation that differ from other forms of passenger service. Such sectors within the economic infrastructure are frequently integrated both technically and organisationally with corresponding sectors of material production.

Universal (general-purpose) elements within the economic infrastructure, on the other hand, serve a wide diversity of sectors of production and transport all types of output. Most transportation and communication sectors belong to that group.

In terms of the scale of their operations and also the spheres to which they apply, economic infrastructures are divided into sectors of *local* or regional significance and sectors of *national* and *international* significance. The former link the producers and consumers for a particular type of output within a particular region of a country. From an administrative, organisational and economic point of view they may be divided into two groups that are independent from each other, namely, rural, economic infrastructures and urban economic infrastructures.

It is the nation-wide sectors of economic infrastructures, however, which serve all major sectors and economic regions within a country, that form the skeleton of a national economy. Their role in the process of the country's reproduction is particularly important.

As the development of international division of labour increases the scope of international economic relations the role of international economic infrastructures becomes increasingly important. This refers to autonomous sectors of economic infrastructure that differ both technically and organisationally from the corresponding national sectors. Examples are provided by the international airlines operated by most countries in the world and by international shipping.

This distinction between different sectors of economic infrastructure is reflected in the planning methodologies that are employed for their development.

Because they generally serve society as a whole, all sectors of economic infrastructure are characterised by a substantial measure of socialisation. Even local infrastructures

operate as direct forms of social production though this occurs within the context of specific regions.

This is the reason why by far the greater part of economic infrastructures develops within the state sector and at government expense. In most countries local infrastructures are owned by local state bodies, while infrastructures of national significance are owned by the central government. For developing and managing means of transportation and communications that are of international significance intergovernmental economic organisations are often established. An example is provided by the transportation corporations (rail, air and ground) of the East African Economic Community, whose ownership is equally divided between that community's three members (Kenya, Uganda and Tanzania).

Economic infrastructures thus result from a widening and complexification of territorial and intersectoral division of labour, first at the national level and then at the international level. As this division of labour deepens and, hence, economic development proceeds economic infrastructures, too, become more developed and play a greater role within the overall process of social reproduction.

It is difficult to imagine either today's national economies or today's world economy without the corresponding level of development of all sectors of economic infrastructures. These link different sectors within the economy and different production activities within individual regions and operate as intermediate elements in relation to the major distinct stages of the reproduction process, namely, production and distribution.

Because of these mediating functions, economic infrastructures play a major role in the social reproduction process today. In effect they integrate all sectors, phases and stages into a single process and constitute a necessary condition for the reproduction process, since the activities of any sector are completed only when their outcome is conveyed to appropriate consumers. Lenin observed that railroads are visible embodiments of linkages between cities and villages and between industry and agriculture.

The development of many sectors of material production is unthinkable without specific forms of infrastructure. In the case of arid regions, for example, agriculture is impossible without irrigation. Similarly, many energy-intensive types of production, including that of non-ferrous metals and

chemicals, are impossible without power transmission systems.

Economic infrastructures create the economic and technical prerequisites required for a proportional development of production sectors within particular countries as well as at the international level. Well developed economic infrastructures are thus vital to the emergence and normal functioning of international systems of division of labour and hence of the entire world economy as well as that of national economies.

Neither at the national level, however, nor internationally, are appropriate proportions among rates of development of different sectors of economic regions established automatically by the economic infrastructures themselves. Internal proportions within the economic infrastructures themselves, moreover, must follow specific norms if they are to function effectively.

A common mechanism develops and maintains both the macroeconomic and the internal proportions of economic infrastructures.

The role of economic infrastructures has become particularly important in situations in which economic linkages among sectors and regions (both nationally and internationally) have become both complex and abundant. Not only is it important to avoid disruptions in the operation of various infrastructure elements and effect transfers of output from producers to consumers on time, but it is often also important to achieve this rapidly and at low cost. The rate of socioeconomic development as well as its scope have come to depend in many ways on the timeliness of transportation and communication services and on their rapidity of adaptation. This requires a reliance on advanced standards in relevant branches of science and technology.

Yet it is the basic sectors of material production that develop the means and methods that are employed for delivering their output to consumers, i.e. the relevant equipment and economic infrastructures. They also determine the scale on which they are developed and their economic efficiency. Ultimately it is the specific characteristics of the objects being transported, i.e. their physico-technical and economic properties that determine the structural differentiation of economic infrastructures, i.e. the existence of different autonomous sectors within them. But an important role is

also played by the distances over which the outputs of productive activities are carried. It is production, in short, that plays a leading role within the larger system that links production activities to economic infrastructures. This point is of fundamental importance in arriving at an overall strategy of economic development, and at corresponding plans for developing economic infrastructures.

Aside from purely technical forms of dependence on the growth of material production, other factors also influence the development of economic infrastructures. In particular, a major role is played by the social organisation of a society and the economic principles that govern it, for these determine, in turn, the objectives and methods of production that are employed throughout its economy, including its economic infrastructures. Thus the latter develops differently in socialist and in capitalist countries.

In short, the principles that govern the development of economic infrastructures reflect and express those that govern the development of a country's entire economy, and especially the development of sectors concerned with material production, that is, agriculture, industry, energy and construction activities.

The current state of the economic infrastructures of newly independent countries and prevailing trends in their development are determined by the general principles that govern their socio-economic development. Following their independence, most developing countries generally place considerable emphasis on developing their economic infrastructures, which continue to hold a central position in many plans of socio-economic development. In the 1960s 30-50 per cent of gross capital investments into the economies of newly independent countries were assigned to such sectors, which therefore tended to develop more rapidly than others.

Yet it is also true that the economic infrastructures of most Afro-Asian and Latin American countries remain backward in terms of current world standards. In particular, the value of the services that they produce per capita in the more developed countries is 10-15 times lower than the corresponding indicators in West European states.

Substantial inequalities continue to exist in their territorial distribution within individual countries. Sectors associated with external relations and linking former colonies and semi-colonies with economically developed countries are

generally most developed. Similarly those infrastructures of developing countries whose output is primarily export-oriented are relatively more developed.

The economic infrastructures of less developed regions, on the other hand, and especially of rural infrastructures, are extremely backward. In many regions of newly independent countries modern means of transportation and communication and also electricity do not yet exist. In addition, those sectors of economic infrastructures that integrate the country into a unified national economic complex are also poorly developed. Major economic centres of developing countries (especially those possessing large territories) are often linked more closely through means of modern transportation to other countries many thousand kilometers away than they are to their own interior districts.

Such economic infrastructures developed during the colonial period when the state of economic development was characterised by backwardness, unevenness, low diversity, specialisation in export-oriented specialised crops, and a dependence on mother countries. The level of internal economic linkage continues to be low in such countries, i.e. there still do not exist national economies in the usual meaning of that term. The insufficient development of major elements of economic infrastructures of national significance is one of the major impediments to the overcoming of backwardness.

Since overcoming backwardness and disproportions in the development of economic infrastructures is a major economic objective in many developing countries, the principle of according priority to the development of economic infrastructures is embodied in many developmental strategies. At the same time the elements of infrastructure that are then created are often underutilised. This may be due to lags in developing other economic sectors, to insufficient capital investments, to shortages of adequately trained labour, and to shortages of effective demand in the country itself.

Such situations often appear in countries in which economic infrastructures are primarily developed by the state, i.e. in a planned manner, while all other sectors belong to the private sector and develop autonomously under the influence of the principles that govern commodity production. Policies of "assistance" by capitalist countries that emphasise the creation of elements of infrastructure also

contribute to the development of such situations.

A prominent feature of the economies of most developing countries is their orientation on external markets for locally produced outputs (primarily raw materials) as well as on external supplies of means of production and of consumer goods. The role of international transportation and communication services is particularly important in maintaining a normal reproduction process. This especially refers to ocean shipping, which carries by far the major part of commodities entering into foreign trade, although in the case of land-locked countries such commodities are transported by trucks and river transportation systems.

In the years that followed their independence emphasis has been given to the development of general-purpose infrastructures. Nevertheless, in many cases "internal" infrastructure systems owned by large industrial and other firms continue to play an important role. This is particularly true of electrical energy systems in a number of African and Latin American countries (Nigeria, Zaire, Venezuela, Argentina) possessing large deposits of raw materials or petroleum. Because the initial development and utilisation of these resources was carried out by foreign firms they generally constructed the necessary infrastructures themselves.

The development of state sectors within economic infrastructure is explained by new construction activities as well as by the nationalisation of private enterprises.

Three sectors are thus combined within the economic infrastructures of developing countries and represent one of their major socio-economic characteristics: a generally dominant state sector, a foreign monopolistic sector, and a private national sector. The last two sectors may combine in playing a dominant role. The methodology employed in planning the corresponding sectors reflects such a structure.

With regard to forms of organisation the economic infrastructures of developing countries display a multiplicity of autonomous organisations, both state-owned and private, that manage individual technical systems. State infrastructures are managed by services, agencies and firms of national or local significance, some of which operate only within a particular city.

Several such managing organisations frequently exist at

each major level, as well as within individual sectors (transportation, electricity, etc.).

The formulation of strategies for developing economic infrastructures requires a comprehensive analysis of the needs of the national economy for services of such national sectors and also of current world standards in creating infrastructures.

An important element of national development strategies concerns the growth of the state sector within major sectors of economic infrastructures. This means that the state operates as one of the main investors into these sectors as their activities widen and new construction proceeds.

The experience of many countries confirms that a prevalence of private interests in individual sectors of economic infrastructures inhibits the further development of production and of national economies as a whole. But it is also true that in certain situations inadequately prepared acts of nationalisation may be equally harmful. More generally nationalisation will produce positive results when it is carefully prepared and planned.

While the development of economic infrastructures must play an important role in overcoming the socio-economic backwardness, this raises a serious scientific as well as practical problem, namely, how to determine the desired proportions between the rates of growth of economic infrastructures and those of other economic sectors. For an adherence to specific proportions among major sectors both within the economic infrastructure and in its relations to associated major sectors of material production is one of the basic elements of government strategies relating to development. Two points of view currently exist in bourgeois science concerning this problem. According to the first, economic infrastructures should develop more rapidly than other sectors in countries that have freed themselves from colonial dependence. The second proposes that their development be less rapid.

The grounds offered for the first of these conceptions is that a more rapid development of means of transportation and of communications, electrical transmission lines, and water supply systems will subsequently operate so as to encourage the further development of production activities in industry, agriculture, and construction.

The second point of view is largely based on a critical

generalisation of the past experience of countries of Asia, Africa and Latin America. This has shown in fact that the creation of infrastructures that are excessive in relation to existing needs does not usually encourage the growth of all other sectors. Instead the newly created infrastructures operate far below capacity and the investment goods that they embody thus remain "frozen". This observation has led to the inference that the economic infrastructures of developing countries should therefore lag to some extent behind the requirements of these countries' economies, and that an "infrastructure shortage" should be maintained.

It is more appropriate, however, to view this problem in terms of a complex approach. Economic infrastructures and other sectors of national economies constitute closely linked elements of an integrated process of reproduction within which material production activities play a leading role. A balancing of interdependent elements is one of the major principles of a genuinely scientific development strategy. In the present context this means that planning activities concerned with the development of particular sectors of material production for specific regions within a country must also be supplemented by calculations of their requirements for inputs from all types of economic infrastructures. These are the calculations that provide a basis for planning their development. The experience of many developing countries confirms the general existence of a lag in the development of infrastructures (particularly transportation and communication services) in relation to rapidly growing needs in other economic sectors. To overcome such lags is thus an important objective in planning their development.

A major national objective of developing countries concerns the gradual overcoming of existing differences in the levels of socio-economic development of individual regions within the country. This requires that priority be given to developing those that lag the most and also that strategies of infrastructure development emphasise local means of transportation and communication together with the creation of nation-wide infrastructure segments linking such regions to others. This serves to create integrated national economies.

The development of economic infrastructures should contribute to forms of spatial distribution of productive forces

that are rational and effective in the light of the current state of scientific and technological knowledge. It should also contribute to overcoming differences in the levels of development in individual regions within the country and to the balancing of national economies as a whole. In economies specialising in the large-scale production of agricultural or mineral raw materials for export it is especially important to develop national transportation systems serving export-import operations. Particular emphasis should then be placed on ocean shipping, since this accounts for by far the greater part of most countries' international transportation activities.

A complex aspect of the development of economic infrastructures concerns the attaining of a proportionality of sectors that appear as complements and substitutes for other similar sectors. This refers to the proportionality of means of transportation that are linked sequentially within systems of spatial exchanges of the outcomes of human activity (i.e. railways, trucks, railway-water transport, etc.). The functioning of such joint transportation systems requires adequate throughput capacities and adequate loading and unloading facilities at specific locations. Such systems should be viewed as integrated complexes, even though their components are "parts" of different sectors of economic infrastructures.

In practice important disproportions exist in many developing countries in the development of such integrated systems of transportation. There are many cases in which the construction of national and international highways is not accompanied by a corresponding expansion in networks of feeder roads that would then make it possible to freight directly from points of production to such highways, and this has an adverse effect on the normal functioning of economies. Similar situations exist in the case of irrigation systems whose networks of distribution canals lag far behind the construction of reservoirs and large canals.

Since each form of transportation possesses its particular technical and economic advantages and disadvantages its use will be effective only in the presence of specific conditions that are determined by such factors as the country's natural geographic characteristics, the type and volume of freight that is to be carried and the relevant distances. While reliable estimates of relative costs of alter-

native forms of transportation are therefore very important, the rates and prices that currently exist in developing countries are generally unsuitable for such calculations. It is therefore more useful to rely on various accounting indicators based on project data and on techno-economic calculations that reflect the actual magnitudes of overall economic expenditures on the transportation of freight.

Appraisals of the ability of specific types of transportation systems to compete in concrete situations are of great importance. This is particularly true of the relative effectiveness of trucking as opposed to railways. The importance of the latter has frequently been underestimated, but as prices for the fuel required by trucking systems increase, the advantages of railroads become more evident.

Because of their overt social character the development of all elements of economic infrastructures calls for an integrated and centralised state policy and for government control and regulation. While the precise measure of centralisation that is appropriate and also the scale of regulation activities and the methods employed will vary, it is generally desirable that local infrastructures remain under the control of local bodies and that central bodies be responsible for nation-wide infrastructures and for co-ordinating the activities of local elements of infrastructure.

Even within the state sector itself, not to mention the private sector, a diversity of regulating organisations and enterprises carrying out autonomous policies usually exist, and many of them duplicate each other's activities and even compete with each other. This reduces the effectiveness of individual sectors and systems.

A greater centralisation is needed of state administration activities concerned with the development and operation of major elements of economic infrastructure. This is the most important structural reform. Improvements in the price formation system may also play an important role in increasing the effectiveness of infrastructure activities. This refers to the establishment of economically justified rates for the services of economic infrastructures. Such prices can play at least three roles: they may encourage the development of a rational system of territorial distribution of productive forces; they may contribute to more rapid deliveries from sector to sector at minimal costs; and they

may encourage the formation of more rational structures within the economic infrastructure itself.

The costs of supplying these services is the only economically justified basis for establishing such rates. Since infrastructures must normally operate on a self-supporting basis they represent a large source of growth in a country's national income. It is also fully acceptable, however, and appropriate that the state regulate prices for individual types of services, thus permitting their deviation from expenditures on production activities. This may encourage either the production or the consumption of individual types of output and may also strengthen the position of state enterprise.

Many difficulties that confront the development of infrastructures are often attributable to the underdeveloped state of local construction sectors, and especially to the small number, low capital-intensity, and poor organisation of state construction enterprises. In addition, the importance of the repair and maintenance activities that are required for an uninterrupted functioning of infrastructure elements is frequently underestimated. Their low productivity is often explained by the practice of operating them until they are fully worn out. A greater emphasis on regular prophylactic and other types of repair activities of roads and means of transportation is therefore one of the major means for increasing their effectiveness.

The technical and economic assistance of industrial countries plays a large role in developing the economic infrastructures of Afro-Asian countries. Generally, the relative weight of the "imported" component in infrastructure construction and expansion activities is 50 per cent or more. While the selection of proportions between internal and external sources of financing and material supplies that are optimal from the point of view of the general objectives of socio-economic progress is a highly complex problem, it must be considered in the formulation of particular strategies.

An important role is generally played by international means of transportation and communication, whose development is based on the co-operation of interested countries in jointly using particular infrastructure systems (air transport, intercontinental highways, ocean shipping and in some cases river shipping). The dependence of strategies

for developing economic infrastructures on an expansion of economic co-operation among various countries is probably greater than that of any other sector.

Methodological principles of planning. A number of important principles in the methodology of planning economic infrastructures follows from the intermediate nature of their activities, whose scope depends on the activities of the sectors and spheres of social production being served.

Such planning begins with a determination of existing needs for corresponding services.

Three basic types of sectors and objects of economic infrastructure may be distinguished from such a point of view:

- 1) specialised or goal-oriented infrastructures serving specific enterprises or production units;
- 2) general service infrastructures, whose services are available to a large number of economic sectors;
- 3) mixed infrastructures that serve not only production processes but also the population's non-productive needs.

The planning of specialised infrastructures is closely linked to the planning of the corresponding sectors of material production. For example, programmes for developing irrigation facilities are determined by the needs of agricultural production activities, while plans for the construction of petroleum pipelines are closely linked to the planning of increases in petroleum output. In planning large territorial production complexes it is important to specify all their needs for infrastructure services and to plan the precise ways in which they will be met. The principle of a complex approach to economic development must thus be applied. Universal or general infrastructures serving at least several distinct sectors and spheres of the economy represent a more difficult object of planning.

The element of complexity follows from the need to consider the requirements of many diverse consumers. In many cases, moreover, specific characteristics of these requirements must be considered. For example, different types of freight must be taken into account in designing major railway links, since this may influence the type of freight cars that are required, as well as the design of stations and warehouses. Such characteristics must be considered in relation to the corresponding construction specifications and must be included in the corresponding sectors of economic development plans.

A large number of general objects of economic infrastructure are of the mixed type, in the sense that they serve both enterprises and the general population. This group includes nearly all major railway routes, highways, means of communication, and water supply facilities. The corresponding needs of both economic organisations and of the general population must be considered in planning their development. This often meets with substantial methodological and practical difficulties, for the development of the population's demand is governed by complex trends whose nature is by no means always evident. In effecting their transfer and distribution functions objects of economic infrastructures appear as material carriers, as it were, of intersectoral relations, and as material embodiment of the linkages that characterise social production generally. The close links between most such sectors with other sectors and spheres of the economy, as well as the presence of internal multisectoral systems calls for a rigorous adherence to the principle of their balanced planning. The preparation of complex programmes encompassing systems of the "production-infrastructure", "consumption-infrastructure" and "associated infrastructure" types is an important element in such planning activities. These are often incorporated into national plans and partly into local plans. They are also partly incorporated into international programmes of infrastructure development.

In terms of their content programmes and sections of overall national plans concerned with the development of economic infrastructures describe individual projects within particular infrastructure sectors whose implementation relates directly to the country's needs and to specific requirements for infrastructure services.

To the extent that economic infrastructures are incorporated into the centrally managed state sector, they are direct objects of government planning activities. The corresponding section of plans of national development indicate the relative importance of planned indicators proper as opposed to estimates and forecasts. These relate to activities that are directly controlled and regulated by the state through its central and local bodies and a variety of economic services. Within such sections a prominent position is held by descriptions of the planned tasks of government capital investment programmes.

Sectors and elements of the economic infrastructure that are primarily operated by the private sector, such as trucking, for example, are subjected to indirect planning (goal-oriented forecasting). This is also true of general indicators of economic activity within the state infrastructure, since they are themselves based on forecasting estimates of the dynamics of the national economy as a whole, or else of individual components of the national economy, including external economic relations.

The manner in which particular sectors of the economic infrastructures are planned and the methods and degree of detail in terms of which particular indicators are calculated depend to a large extent on the nature of the technical and socio-economic relations that they serve. Possibilities for a direct planning of their development are much greater when there are large state enterprises (including those with a large turnover) than they are for organisations within the private sector, and especially for small-scale commodity production.

Despite the specific characteristics of many sectors of economic infrastructure as to the nature of the services produced, the manner in which production activities are organised, their linkages with other economic sectors, and their socio-economic structure, there exist many common elements in the way in which their development is planned. In its general outline the manner in which programmes of development for individual sectors of economic infrastructure are prepared is identical.

All such programmes are based on indicators of the dynamics of the productive activities of the given sector during the planned period. In the case of means of transportation, for example, they are described in terms of tons of freight to be transported, or most often in terms of ton-kilometers.

First the requirements that will exist for the services of a particular sector at the end of the planned period are established.

In the case of specialised infrastructures the corresponding calculations may be derived from extrapolations based on linear regressions on forecasting estimates of the dynamics of a corresponding "basis" sector. In the case of general (universal) sectors they are based on the expected growth of output of major economic sectors, including ag-

riculture, industry, construction activities and foreign trade. In many countries forecasts of the dynamics of foreign trade provide a major indicator for planning a large share of transportation requirements. For complex transportation systems the level of activities of joint transportation services is established through their mutual correlation. In such cases the principal means of transportation, i.e. the one which accounts for either the greater part of the freight, or else the greatest distance over which the freight is transported, serves as the basis for such calculations.

Estimates of requirements for the services of a particular infrastructure sector express not only the expected dynamics of "basis" sectors of material production or spheres of social life but also planned changes in their location. For all types of transportation it is important to know the dynamics of those freight movements that are stable, as well as possibilities that new freight patterns may appear, that old ones may diminish or else vanish altogether as a result of changes in territorial locations of the "basis" sectors. In planning various forms of passenger transportation serving all clients data is needed concerning both the expected growth in the country's population and the labour force's migration patterns, including urbanisation processes and estimates of tourist flows.

The magnitude of the required increases in the volume of services over the planned period may be inferred from a comparison of future needs for the services of each sector of infrastructure with existing possibilities (capacities). The corresponding calculations also reflect the need to increase the effectiveness of individual sectors through a fuller utilisation of existing capacities, the overcoming of existing shortcomings, and the introduction of more effective equipment, technology and forms of organising production. Such systems of indicators represent a further elaboration of sections concerned with strategies for developing economic infrastructures.

One of the important tasks of such plans is to achieve a rationalisation of the sectoral composition of general means of transportation. The selection of a particular means of transportation for meeting increased freight-carrying requirements (provided it is technically feasible) follows a particular cycle of calculations bearing on the economising advantages of each type of transportation. In this connec-

tion all types of current and capital expenditures must be considered, together with the role of foreign currencies and requirements for skilled labour.

All other sections in programmes for developing all basic types of infrastructure are based on calculations of increases in their level of activity. This is true, in particular, of calculations concerning capital investments required.

Such calculations form the main section of all programmes of infrastructure development. In particular three types of capital expenditures are distinguished, namely, expenditures for creating new objects of infrastructure, for reconstructing and modernising existing ones, and in the case of transportation systems for maintaining and increasing carrier equipment.

State expenditures account for the main part of capital investments in economic infrastructures. This influences the methods employed in planning calculations. The principal one concerns calculations for individual projects. In short, programmes of capital investment into infrastructures are primarily calculated as the sum of capital expenditures on all projects in a given area to be constructed, expanded or modernised. The preparation of such projects is closely linked to prospects for developing the corresponding "basis" sectors of social reproduction. Calculations of planned capacities should provide for an optimal growth reserve above calculated needs for the immediate planned period. The availability of such reserve capacities is an important condition for a further development of "basis" sectors. It is particularly important (in the form of a reserve of throughput and of carrying capacities) in the case of transport and communication projects.

The total capacity of infrastructure projects to be constructed that is obtained through such calculations must be at least as large as forecasted estimates of expected growth in the volume of infrastructure services over the planned period, with due account of "peak" requirements.

Calculations relating to the material, technical, and organisational aspects of supplies required by investment programmes form an important section within such programmes. They include the selection of implementing organisations for construction activities (including government organisations), the supply of equipment and of means of transportation, as well as the specification of sources of

additions to skilled labour. It is also important that they list all necessary institutional measures, such as the creation of new organisations and the expansion and reorganisation of existing units.

The elaboration of such measures is an important aspect of planning activities. When it is postponed until the actual realisation of such plans, as is often the case in developing countries, there is a danger that investment programmes and associated programmes will be disrupted.

A third major section of such programmes concerns calculations of the requirements of all sectors of the infrastructure for different types of operational technical supplies. In the national plans of many developing countries this particular section is poorly prepared. Calculations of the requirements of such infrastructures for raw materials, other materials, fuel, production services, and the corresponding financial means should first be made for each of the planned infrastructure projects in the course of their preparation, and then be generalised in terms of individual sectors of economic infrastructure.

Such calculations are simplified by the use of aggregated norms, that is, of coefficients that relate the capacity or volume of output of an infrastructure object's productive activities with its requirements for those material and technical means that correspond to its normal functioning.

In short, the major aspects of the methodology employed in planning the development of economic infrastructures follow from the two features that characterise that sphere of the economy in developing countries, namely, their intermediate role in relation to others, and their high degree of socialisation of production activities which explains why the greater part of infrastructure sectors develop within the sector of government activities.

This requires a close co-ordination of all infrastructure programmes with other sections of national plans, as well as a reliance on methods of direct planning in their preparations. Both the need for centralised planning at the national level and the possibility for doing this are even more evident in the case of economic infrastructures than in other sectors and spheres of social reproduction. The further development and qualitative improvement of economic infrastructure planning is therefore an important aspect of overall national planning.

3.2.4. Tourism

The rapid development of tourism is one of the prominent features of our times, and the organisation of tourist services is an important sphere of economic activity representing a form of economic co-operation among peoples.

The need for international tourism, as tourism in general, is dictated by the diversity of regions on our planet and man's striving to acquaint himself directly with the geography, points of interest, and customs of individual countries and regions of the world.

From the point of view of the economies of countries receiving foreign tourists international tourism may be compared to exports. In particular it may create substantial earnings of foreign exchange and stimulate the development of all economic sectors. Unlike in the case of export activities the goods and services that are supplied to foreign tourists do not actually leave the country even though payments are made in foreign currency.

By providing an inflow of foreign currencies the development of tourism contributes to increased employment and may account for significant increases in national income. Aside from direct inflows of revenues from tourists substantial indirect influences on a country's economy result from expenditures on various sectors of industry, agriculture, trade, the construction of roads, the development of all types of transportation systems, the development of hotel and restaurant services, increases in the number of sport facilities, theatres, and the production and sale of wines, food products, sports requisite, clothes, and souvenirs.

The basic factors influencing the level of activities of foreign tourists in a country include its geographic features, climate and various national characteristics; the relative abundance of places that are attractive for purposes of rest and leisure; the number of historical monuments and other sites of interest; and the degree to which they attract most tourists; the extent to which transportation services linking the country with other parts of the world are comfortable and inexpensive; the degree of its saturation with means of transportation, hotels, restaurants, stores and other forms of "tourist infrastructure" and the quality of its service; the cost of those goods and services that are

acquired by tourists, with due account of rates of exchange of foreign currencies into local currencies; and the effectiveness with which points of interest and the organisation of tourist services is advertised.

The planning of tourist activities for foreign tourists is concerned with a joint solution of several interdependent problems.

It is based on forecasts of possible tourist flows derived from studies of preceding years and estimates of the influence of the factors affecting tourism that were mentioned earlier. Such forecasts relate not only to the overall volume of tourists expected to arrive into the country and the average time of their arrival, but also the density of major tourist itineraries within the country.* In practice two versions of such forecasts are needed, one that is based on already existing tourist facilities, and the second one reflecting the expected creation of new facilities within the planned period, and especially the development of "tourist infrastructures" in regions that attract tourists most.

The next group of studies concerns possibilities for organising tourist bureaus, and for carrying out the advertising programmes required by the development and functioning of tourist infrastructures (the construction of hotels and restaurants and the further development of transportation services).

An important element in preparing plans for developing tourist services concerns appraisals of their effectiveness, or more precisely, of the economic effectiveness of capital expenditures assigned to the creation of tourist infrastructures and associated projects. This requires data concerning the magnitude of such capital investments, estimates of current expenditures on their operation, and estimates of revenues from services made available to tourists. Since payments for these services may be in foreign currency whose "value" for the country in question depends on the purposes for which it will subsequently be spent (usually for the payment of importing commodities and services) this factor, too, must be taken into account.

In forecasting estimates of tourist flows, in establishing the relationship between the development of tourist infra-

* Unfortunately, reliable methods for forecasting tourist flows have not yet been developed. Such estimates must therefore be largely based on the experience and intuition of planners.

structure and increases in tourist flows, in determining the cost of tourist services, and in organising tourist agencies and services it may be very useful to study the experience of other countries in which foreign tourism is more developed. Such findings must then be adjusted to the particular circumstances of the given country.

3.2.5. Residential Housing

Residential housing includes two sectors of the economy that are interrelated both territorially and functionally, namely, the housing stock of individual settlements and utilities and other general services to the population. In some cases enterprises engaged in meeting the general consumption needs of the population are also included, but these may also be viewed as an independent group.

The most important component of residential housing systems is the *housing stock* of individual settlements. This includes residential buildings belonging to the government, co-operative, or private organisations, and also individual houses that usually belong to the individuals who occupy them.

The utilities of individual settlements include sectors of urban or local infrastructures, such as facilities for the supply of water, for sewage disposal, and for supplying heat, gas and electricity as well as networks of roads and public means of transportation. Water supply facilities and sewage disposal facilities are especially important and no large settlement is possible unless they are available. The road network includes squares and streets, as well as specially constructed transportation arteries both for local traffic and for transit purposes. The growth of large settlements and of the related transportation facilities leads to the construction of special transportation linkages, bridges, tunnels and intersections.

The transportation services of individual settlements are primarily concerned with the movement of passengers, although an important role is also played by various types of freight. Passenger transportation services include private as well as public means of transportation.

Utilities and general services include a diversity of objects whose function is to improve the general state of squares and streets, as well as special-purpose roads, including their

lighting, the planting of trees, the construction of sidewalks and of special paths for pedestrians, and the construction of parking facilities.

The development of individual settlements leads to the growth of an entire group of sectors supplying various services. This includes enterprises supplying personal services (barber shops, public baths, laundries, dry cleaning facilities), a diversity of enterprises engaged in repairing household appliances and in renting the services of durable consumer goods, as well as in the production of individually tailored clothing and shoes. As the number of durable consumer goods increases (passenger automobiles, radios, electrical appliances), so does the number of enterprises concerned with their servicing and repair.

A large number of populated points: cities and settlements that are also major centres of economic activity, in which industrial enterprises and enterprises representing many other economic sectors are concentrated. Large cities are multi-sectoral economic centres, while some of them are also major political, administrative and cultural centres of regional, national, or provincial significance.

The residential and general services and utilities infrastructures of cities (urban infrastructures) are thus distinct from a city's overall economic system. The latter is an agglomerate of enterprises from a diversity of sectors of both the productive and the non-productive sphere located on the territory of individual cities, while urban infrastructures are special sectors designed to serve the direct needs of urban residents.

These enterprises thus produce two types of services, namely, productive services to other industrial enterprises and to the population and non-productive services for the population and for organisations and agencies of the economy's non-productive sphere (health services, education, culture, etc.).

Residential, utilities and general services infrastructures are linkage between the social and economic spheres. While serving wide strata of the population, they also carry out important social functions, as in the case of health services and education. Water supply services and sewage disposal services, for example, are closely related to health. It is therefore not surprising that many Western authors tend to associate such infrastructures with social infrastructures providing community services.

Residential and utilities infrastructures represent a complex of economic sectors playing an important role in the overall social reproduction process. The growing importance of such sectors is an expression of general socio-economic progress, and in particular of the industrialisation and urbanisation of a country's economy.

Residential, utilities and general services infrastructures are among the least developed spheres of the economy of most developing countries. As integrated complexes in the modern sense of that term such infrastructures exist only in large cities and service wealthy groups, while in the case of small towns and rural areas only some of their sectors exist that generally do not meet modern housing standards.

Such elements of technical and economic backwardness and of uneven distribution among different regions and strata of the population are particularly evident in developing countries where they represent the heritage of their colonial past. During the years of independent development, however, that situation has hardly improved in most countries, partly because of the general rate of growth of the population, the urban population above all. While the total rate of population growth in developing countries is currently 2.5-3 per cent per year, the number of urban residents is increasing by 6-8 per cent per year on the average, and often much more rapidly.

While the concentration of the population in cities has sharply increased the demand for residential, utilities and general services infrastructures, possibilities for meeting it are quite limited. In nearly all developing countries, in fact, the shortage of these services is increasing. These services quantitatively and qualitatively lag behind the growth of these cities.

Serious shortages of housing and the overcrowding of residential housing is the leading problem of urban development. Available estimates indicate that in newly independent nations more than a third of the entire urban population lives in overcrowded housing facilities possessing no utilities whatever.* In Asian, Latin American and African cities the rapid and uncontrolled growth of slum areas is a serious economic and social problem.

* Data for this section are taken from *World Bank Operations. Sectoral Programmes and Policies*, Baltimore-London, 1972.

Shortages in water supply and sewage disposal facilities are especially serious. In African countries, for example, the consumption of water per capita in cities is 10-15 times lower than in Western Europe or North America. Data prepared by the World Health Organisation indicate that only one-fourth of the urban population receives water through pipes reaching individual houses, while another fourth receives it from outlets located in streets. In most cases either cars or trucks deliver water to individual districts and sewage is collected in a similar way.

The rate of growth of cities as centres of concentration of population and of economic (and especially industrial) activities is much more rapid than that of urban transportation capacities. In most cases public transportation systems are clearly inadequate and are unable to cope with growing needs for passenger transportation services. In addition, obsolete configurations of streets and residential areas frequently disrupt the operation of transportation systems.

Such are the major problems and difficulties that confront the development of residential housing utilities and general services infrastructures in the cities of developing countries. Because they are so urgent national governments tend to participate very actively in the development of this economic sphere.

Urban infrastructures develop primarily within the state sector. Many governments subsidise a wide range of services provided by urban infrastructures. In many cases, however, privately-owned forms of automobile transportation and utilities continue to play an important role. Generally large industrial enterprises possess their own energy infrastructures, water supply systems and sewage disposal and transportation services.

By far the greatest part of the housing stock of developing countries is privately-owned.

In recent years there has been an increased emphasis on the construction by the government of inexpensive low-rent apartment houses accessible to many strata of the working population.

Governments also provide financial, organisational, and technical assistance to co-operative housing enterprises and to construction of individual dwellings. In particular, they frequently make available already developed land possessing the required infrastructure. Aside from this, privately-fi-

nanced housing construction activities are also proceeding intensively in a number of countries.

The direct and indirect participation of national governments in developing residential housing and utilities that provide services to wide strata of the population at prices lower than those of private commercial enterprises represents a particular form of redistribution of national income in favour of the working people.

Residential housing, utilities and general services infrastructures are usually organised on a city-wide basis. This is especially true of utilities (transportation, water supply, sewage disposal) most of whose elements are integrated in a technological sense and therefore also require an economic and organisational integration. Especially in the case of densely populated and overcrowded cities, large capital investments are needed to develop these sectors, particularly since a large part, and occasionally a major part, of urban and suburban lands are privately-owned.

Since the low effectiveness of many municipal infrastructures in developing countries is a major problem, lack of technical and organisational integration on the part of local government bodies is often a major obstacle to their more rapid development.

This sphere of the economy of developing countries is in fact "divided" among a multitude of independent private and government organisations. This makes more difficult the development and application of corresponding integrated national or even local urban policies (in large cities).

Developing countries need *integrated national urbanisation strategies* within which strategies for developing urban infrastructures appear as a major element. Such strategies should be concerned, first, with facilitating the solution of national problems of socio-economic development, and, second, with overcoming "bottlenecks" in the residential housing, utilities and general urban services infrastructures themselves.

In developing countries the problem of developing such infrastructures can only be solved at the national level. The limited development of that sphere is a factor that strongly inhibits the developing of the urban economies and national economies of newly independent countries. Improvement of the housing conditions for the popular masses is one of the ways in which existing inequalities in property ownership

may be reduced. All governments irrespective of their political orientation are faced with this problem. It calls for effective solution, being a latent source of serious social and political difficulties. In the case of rural settlements and small towns improvements in the development of residential housing, utilities and general services infrastructures is an element of a wider task, namely, to improve local living and working conditions in order to reduce existing trends towards the concentration of the population and of economic activities in large cities and administrative centres, and to alleviate their shortages of residential housing and urban services. Together with policies aimed at encouraging the economic development of distant regions, it is important to plan and carry out economic and administrative measures seeking to discourage the further growth of large cities.

Such strategies call for a further widening of government participation in the construction of residential housing and urban services facilities. This is made necessary by the increasing contradictions that are developing in this sphere and by the inherent inability of the private sector to overcome them.

At best private investments may meet the housing needs of the highest income groups of urban and rural populations. The need for expanding government activities in constructing housing facilities that are within the reach of wide strata of the working population has been confirmed by past experience. This may be achieved through the creation of specialised housing construction corporations belonging to the government or else to its local bodies. But it is evident that in most countries the state is unable to fully meet the vast needs of the population for inexpensive housing facilities. It is therefore important to encourage the construction of housing on a co-operative basis.

A major obstacle to the development of residential housing, utilities and general urban services and to their adaptation to the needs of the majority of the population, as well as of national economic development, is the control of private capital over major types of utilities and also the private ownership of urban lands. To overcome these social problems in the interests of national objectives is therefore an important element of strategies of urban development.

In the case of developing countries most urban enterprises engaged in providing general services to the population

are privately-owned. At the present stage of development it is probably not realistic to envisage a transfer to the state sector of the corresponding craft organisations and small capitalist enterprises and to view this as a major strategic objective. Nevertheless, the government can influence the development of that economic sphere through methods of indirect regulation, particularly through appropriate forms of taxation and credit policies and also by controlling prices.

The effectiveness of such measures is increased when organisations of the craft-type combine into various types of co-operatives.

Finally, the manner in which urban transportation services are organised, and in particular whether emphasis is to be placed on the development of public or else of private means of transportation, is still another major element within strategies for developing the sphere of utilities and general services.

When applied to crowded Asian and African cities, systems of urban transportation that emphasise the development of privately-owned means of transportation appear to produce major difficulties. Aside from aggravating traffic conditions and the problems of servicing and parking automobiles, they are also more expensive for the national economy as a whole. In addition, they do not serve the interests of the greater part of these countries' populations.

The methodological principles that are appropriate in planning the development of residential housing, utilities and general urban services follow from their position within the overall process of social reproduction and from the functional relations that exist between these services and other sectors of the economy. They also reflect the specific characteristics of their sectoral and socio-economic structure.

The principal function of such infrastructures is to meet the needs of the population with respect to housing and a diversity of everyday services. These services largely determine the economic and social conditions governing the reproduction of labour power. The volume of such services that is required depends on the size of the population, its social structure and level of incomes.

The initial basis for planning such activities is therefore provided by forecasts of the size of the population both for the country as a whole and for individual regions, large

cities and other populated centres. In this connection a division of the population into urban and rural population, together with estimates of changes in levels of incomes of individual groups, plays a major role. The population's distribution among individual regions largely depends on the nature of economic activities and level of employment within individual sectors. It should be kept in mind, however, that many sectors in the field of utilities and general urban services also serve individual economic sectors, particularly in the processing industries. Beyond this, urban economies and the entire life of urban and other settlements are themselves closely linked to the operation of other economic sectors and particularly of economic infrastructures, including systems in the fields of energy, transportation and communications, as well as of elements of social infrastructure. Due to these functional linkages within the residential housing, utilities and general services infrastructures a second point of departure in planning their development concerns the distribution of productive forces within the country, particularly of industries and of basic elements of the economic infrastructure.

The planning of residential housing and associated infrastructures is thus an element of both national and territorial planning. The principle of relying on a complex approach to planning requires that programmes for developing such infrastructures be combined with corresponding sections of territorial plans. Such plans should extend over periods of time (10-15 years) that are longer than in the case of national plans of socio-economic development.

Both the design of new infrastructures for new cities and their reconstruction in the case of existing urban centres should follow the so-called "open approach" which also envisages serving the relevant needs of future adjoining suburban areas. A basis for establishing a country's requirements for such infrastructures and for their regional distribution is provided by demographic forecasts and data relating to the territorial distribution of productive forces within a country. General data of this type is then made more specific in relation to individual sectors and component elements of such infrastructures with due consideration to the specific functions that they are expected to perform. A point of departure in planning urban transportation services is provided by data concerning existing and expected flows of

passenger traffic in the given city. These flows depend primarily on the location of large enterprises and organisations in its territory and adjoining districts in relation to the location of residential areas. But it is also influenced by possible passenger traffic to recreation areas (for example, beaches) and large shopping centres. The planning (or more precisely, forecasting) of networks of repair shops for such items as electrical appliances (including radio and television sets) requires a different set of data. The population's requirements for these types of services depend on the size of the population and the level of their incomes. There also exists a direct relationship between the estimated number of consumer durable goods owned by the population and the needs for their servicing and repairs.

The volume and range of activities required to meet an economy's needs for residential housing, utilities and general services may be inferred from comparisons of calculated and forecasted needs of individual sectors and organisations (and of their territorial distribution) with the situation that exists initially.

At least at the present stage, however, such a "possibilities-oriented" approach is not feasible for most developing countries. This is because even very modest norms lie beyond the range of feasible activities in most cases. Accordingly, realistic approaches must be based on studies of what is feasible. The planning of residential housing, utilities and general services infrastructures must then also be guided by the requirements of other national tasks listed in national development plans and in corresponding regional plans. Still another important methodological principle for preparing the corresponding sections of national plans is the method of "overcoming bottlenecks" and of assigning available resources to the highest priority tasks.

In such cases as well a major stage of pre-planning calculations concerns estimates of both the current state of such infrastructures and of the most urgent needs. Without such a knowledge it is impossible to find the most rational methods for utilising available resources.

Housing construction programmes form a major element in the corresponding sections of a plan. They are based on estimates of the needs of cities for increasing existing housing capacities and for modernising or repairing them. Programmes for the development of utilities and general ser-

vices infrastructures are divided into two parts. The first is concerned with improvements in utilities serving residential housing, while the second is concerned with serving newly created residential units.

The decisive role of the government in developing such infrastructures is reflected in a number of important methodological principles employed in the corresponding planning activities. The relevant calculations are largely based on the "project-oriented" approach. The experience of developing countries in this regard indicates that the preparation of feasible designs ready to be carried out is a very difficult task. Improvements in surveying and design studies offer one of the major means for improving the overall planning of socio-economic development.

Forecasting estimates play an important role in devising plans for the development of such infrastructures. Aside from forecasts of the required initial data, this includes forecasts of the development of those sectors of urban economies that are privately-owned, and especially of various service enterprises and shops concerned with repairing clothing, shoes, and durables.

The preparation of techno-economic justifications for partial (sectoral) and complex projects and of estimates of their social and economic significance is based on a "possibilities-oriented" approach to the planning of such infrastructures and an orientation on the "overcoming of bottlenecks". This is especially true of calculations intended to relate the costs of various housing units, utilities and general services to the size of the population and the income levels of most of its members.

The achievement of major socio-economic tasks associated with the planning of residential housing, utilities and general services infrastructures, namely, the gradual elimination of shortages in its services serves either directly or indirectly the attaining of other national objectives, such as a general acceleration of socio-economic development, the overcoming of differences in the development of individual regions within a country, and redistribution of national income in favour of the labouring part of the population and of the lowest income groups.

3.3. COMMODITY-MONEY CIRCULATION

The two basic stages of the process of social reproduction are material production and the consumption of the resulting product. It is the distribution sphere that links the producers and consumers of individual parts of the social product and performs major functions in distributing it both among different spheres and sectors of the economy and among a society's various members and social groups. Currently this link usually takes the form of a joint commodity-money circulation.

Within that process three independent elements may be distinguished, namely, the circulation of commodities, the circulation of money, and credit and financial relations. Commodity circulation, that is, domestic and external trade plays a mediating role between production and consumption. It thus performs a major function in making possible a realisation of the social product. In such a context government finance represents a special sphere that is governed by specific principles.

In order to understand the role of the sphere of circulation within the process of reproduction and the methodological principles that are appropriate for its planning in such a way as to regulate the entire process of reproduction, it is important to be aware of several functions that are particular to this sphere.

Commodity-money circulation expresses the unity of the physical and value forms of reproduction. Each product of labour activities (whether it is a commodity or a service) created for purposes of sale and entering the sphere of commodity-money circulation must express its use value and find its consumer. At the same time, however, only when this is done, products of labour activities also express their value in the form of market prices. Money is then needed to mediate each act of purchase and sale.

Market relations, whether they are guided by the state or else by autonomous mechanisms, express a correspondence between the supply of a given commodity and the demand for it. Ultimately this is a correspondence between production and consumption activities.

It follows that in regulating the sphere of commodity circulation through planning and through indirect government regulation one of the principal tasks is to maintain a con-

tinuous correspondence between production and consumption activities (through correspondence between demand and supply). In principle, moreover, such a correspondence must exist both in relation to the value of commodities and in relation to the physical composition of commodities.

Market prices are directly influenced by the correspondence of supply to demand. But the price level of a particular commodity that is established through markets also exerts a feedback relation on supply (and hence on production), as well as on the level of demand (and consumption). Increases in the market price of a given type of product bring about an increase in its production. But at the same time high prices operate as a factor that reduces demand and consumption and encourages consumers to either find substitutes for "expensive" commodities or else renounce its purchase altogether.

These two feedback relations within the production-supply-market price-demand-consumption chain cause market prices for commodities and services to operate as a link through which it is possible to influence both production and consumption activities. In particular, government regulation of the market prices of individual groups and types of commodities and services is a widely used method for indirectly regulating both production and consumption, and in certain situations it is relatively effective.

Neither value nor surplus value are created directly within the sphere of commodity circulation, i.e. outside those production-related roles that are assumed by commerce. The major share of profits and of other revenues received by commercial organisations derive from surplus values produced within sectors of material production. Trade, in short, exerts a considerable influence on the redistribution of a society's national income and this makes it possible for the government to make wide use of the sphere of commodity circulation to regulate not only production and incomes and consumption, but also to mobilise the financial resources that the State Treasury requires. For many products of labour, however, trade activities also perform important functions in endowing them with forms that make them convenient for consumption (sorting, weighing, packaging), and in storing and transporting them, i.e. it performs a number of productive functions that increase their value in conveying commodities to consumers.

The organisational structure of trade activities exerts a great influence on its redistribution functions. Above all, the presence of many stages within commercial links increases differences between the producers' delivery price and the price at which a commodity is bought by the final consumer. It also results in a further redistribution in favour of commercial activities of initial incomes received within the sphere of production. This, too, increases the possibilities that are available to the state for relying on the sphere of commodity circulation for purposes of indirect regulation.

Commodity-money circulation may be divided into two parts, namely, an internal and an external part. External economic relations include external commodity and monetary circulation and trade in commodities and services and also financial (monetary, credit) relations.

Internal and external trade and internal and external monetary circulation and financial relations are closely linked to each other. This results from the integrated character of the entire process of commodity-money circulation.

The movement of commodities from producers within the country (from the internal market) to a consumer on the external market is ultimately matched by a return flow of means of payment based on "foreign currencies". The current state of a country's payment relations and the extent to which they are balanced exerts a substantial influence on internal money circulation.

The internal financing of capital expenditures and even operating expenditures is generally closely associated with external financial relations. In many cases more than half of the investments of developing countries are financed from external sources. In addition, an important part of the revenues of foreign firms and of foreign citizens is regularly transferred out of developing countries.

This close linkage between internal and external circulation is reflected in the economy's organisational structure. In many countries both foreign and domestic firms are simultaneously engaged in imports, as well as internal wholesale trade and substantial part of urban retail trade. Similarly banks, including foreign banks, may be engaged in both internal and external transfers and financing operations.

Nevertheless, external commodity-money relations constitute a special sphere that is governed by its own principles that reflect relevant political and socio-economic conditions.

This explains the organisational autonomy of state planning activities in the sphere of external economic relations.

3.3.1. Internal Trade

The internal trade of developing countries possesses a number of specific traits that reflect their socio-economic structures. One such trait is that only a part of material production enters into trade, especially in the case of agriculture. Beyond this as much as a half of that output may be consumed without entering the sphere of commodity circulation. This refers to natural and semi-natural types of production activities, as well as to small households that specialise in some specific type of commodity production but continue to meet themselves nearly all their own requirements for food.

In most former colonies and semi-colonial countries a major share of the internal circulation of consumer goods is associated with local markets. This reflects an important characteristic of their entire economies, namely, their division into autarchic local economies. National markets then serve the distribution of industrial consumer goods (particularly of durable consumer goods) and of modern means of production, and also convey commodities to external markets.

In spite of the relatively small number of intersectoral and intrasectoral linkages that exist within such economies and the limited size of their internal markets, the relative weight of internal trade activities in their aggregate income and in the formation of their gross national product (if one relies on methods of calculation employed in non-socialist countries) turns out to be higher than in industrial countries. This is also true of those least developed countries in which natural and semi-natural types of households continue to play a large role. This is explained by the prevalence of small-scale and medium-scale commodity producers whose modest financial means and distance from consumers causes them to dispose of their output through a numerous and highly elaborate network of middlemen. The lat-

ter then retain an important and sometimes major part of the values and incomes created by commodity producers. Beyond this the modest capacities of national private capital in most developing countries, and particularly in the less developed ones, do not permit it to develop industrial production on an important scale. Accordingly, one of the major spheres to which national capital is applied continues to be internal trade.

The population's low purchasing power and the prevalence of a rural population that is relatively less integrated reduce possibilities for concentration of capital within commerce. Instead the existing specific organisational structure of trade continues to operate, namely, one in which there are many stages and many individual small-scale trading enterprises (including enterprises of the family type that do not rely on hired labour).

Together with the role of internal trade in social reproduction these particular socio-economic characteristics explain why there is a tendency towards an increased participation of national states in social reproduction. In individual countries pursuing a socialist orientation the state already controls a major share of wholesale trade and certain links within the network of retail trade, particularly in cities. In addition, the governments of these countries seek to regulate the activities of private trading enterprises.

In countries following a capitalist orientation the role of the state in regulating commodity circulation is far less important. In some cases government sectors play a dominant role in purchasing agricultural commodities produced for export, particularly when they are produced by small-scale agricultural households and by state enterprises. In addition, the various economic difficulties of recent years have produced a relatively rapid extension in the role of the state sector in internal trade as well, both in major food products and in industrial products (including petroleum products) that are produced by state enterprises or else imported by state foreign trade organisations.

Possibilities for state control over and regulation of private trade and specific types of products vary widely. In particular, governments are able to influence relatively easily that part of internal trade that is associated with so-called social markets, that is, with the purchasing of commodities and services by the state itself through its central and

local bodies. Similarly, by controlling and regulating investment activities within a country as well as exports and imports, governments are able to exert an active influence over the sale of imported commodities and the distribution of means of production on internal markets. Trade activities in consumer goods, on the other hand (particularly in the case of retail trade and of small-scale wholesale trade), are generally subjected to few regulations, since they are carried out by a large number of small-scale traders who serve a multitude of small-scale commodity producers as well as consumers.

The composition of the population's personal consumption, particularly its commodity structure is influenced by many autonomous factors. This complicates considerably the planning of retail commodity circulation, even when it is carried out by state organisations.

The general objectives and methodology of planning activities concerned with internal trade follow from the role of trade in the process of reproduction in the specific socio-economic conditions that exist in a given country.

The aim of planning trade activities is to replace as soon as possible, given existing socio-economic conditions, the operation of autonomous mechanisms for achieving a correspondence between supply (production) and demand (consumption), i.e. to weaken the negative influences of the market mechanism. The technical means that are employed in solving this problem include the use of various systems of current and planned balances that encompass a major part of the goods that are produced and consumed within the social product. This requires a close linkage between this type of planning and the planning of sectors of material production. In such a context the unity of the physical and value forms of reproduction implies that the planning of trade must be combined with a planning of monetary circulation and with government measures that regulate internal prices.

In order to avoid disruptions in the distribution of the social product and also unjustified losses and expenditures in the sphere of circulation the planning of trade activities must also encompass the material and technical infrastructures serving trade activities.

In situations in which private ownership of means of production prevails, in which there are large numbers of com-

commodity producers, and in which a major part of internal trade is in the hands of private persons representing a large number of relatively small trade enterprises, a direct planning of internal commodity circulation is obviously impossible. Accordingly, in planning and regulating both material production and external trade the government must rely on various indirect methods. External trade is generally closely linked to internal trade activities. Government activities in regulating domestic prices, wages and other types of incomes also play a certain role, although this is inevitably modest when political and economic instabilities exist.

Depending on specific socio-economic conditions the following forms of planning may be employed:

- a) forecasting the development of individual spheres and elements of internal trade;
- b) formulating either specific or else more general tasks relating to the development of internal trade that follow from the state's economic policy and that are based on aggregated forecasts, calculations, and balances together with an elaboration of specific government measures directed at meeting these tasks;
- c) planning specific measures for regulating the circulation of commodities in order to influence indirectly both their production and consumption;
- d) preparing programmes for developing the material and technical infrastructures of internal trade and for restructuring socio-economic and organisational structures.

In most developing countries it is desirable to prepare at least the following forecast-oriented balances over the planned period (either in relation to individual years within the planned period or else to the final year of the medium-term plan):

- 1) a balance in value terms relating to consumer goods (national production-internal consumption $\pm$ imports-exports $\pm$ changes in accumulated stocks) and to the population's effective demand (personal incomes-expenditures on services-savings). Such balances may possess subsections relating to major groups of commodities (for example, food products, industrial consumer goods, consumer durables);

- 2) balances in value terms representing the material and technical supplies for capital construction and the supply of producer equipment. Their main purpose is to establish the requirements for importing producer equipment for speci-

fied (planned or forecasted) volumes of capital investment;

3) balances in physical terms representing major types of structural materials, such as cement and rolled steel. These are based on expected volumes of capital construction activities and on the metal requirements of domestic mechanical engineering and metal-processing industries (with due account of their requirement norms over past years and of calculations for major projects envisaged by the plan).

Whenever there are state organisations and enterprises that are responsible for purchasing and distributing individual types of output, or else for supplying particular sectors of the economy (for example, state organisations for purchasing grain and for trading in grain, or supplying fertilisers and machines to agriculture), it is important that their trade activities be centrally planned in accordance with relevant indicators of the national development plan.

While planned and forecasted indicators relating to internal trade thus play a major role, the possibility of utilising the circulation sphere as an indirect means for regulating production and consumption is equally important. The following methods of such an indirect regulation may be employed in most developing countries:

1) government control over prices, especially the prices of consumer goods, in order to influence the level of consumption of individual commodities;

2) the establishment by the government of stable purchasing prices or delivery prices for individual types of output in order to either stimulate or else discourage their production;

3) indirect taxation in order to discourage (or else encourage) the consumption of particular types of commodities as well as to increase state revenues;

4) control over profits at various stages of circulation, in order to prevent the accumulation of excessive wealth among traders and trading organisations and to reduce prices to final consumers;

5) the establishment of a system of licenses, franchises, etc., for specific commercial entrepreneurial activities and of direct taxation of incomes received from such activities in order to prevent an excessive development of commodity distribution networks.

The experience of many developing countries confirms that the drafting of such plans (primarily of a forecasting

nature) of the development of internal commodity circulation, which maintain a linkage between production plans and consumption plans, and which include measures for achieving an indirect regulation of the circulation sphere, may contribute substantially to solving the problems that inhibit national economic development.

3.3.2. Money Circulation, Credit and Government Finance

Under conditions of commodity production, money circulation and credit relations are major elements of the circulation sphere. While they are closely linked, they are also largely independent of each other.

While transfers of commodities from producers to consumers are effected with the help of money such transfers of different parts of the social product do not take place continuously and are interrupted. This is true of both the physical aspect and the value aspect of such transfers. As a result, credit uses of money become both possible and necessary. This includes means of circulation and payment and also the accumulation of resources in the form of money that originate in credit creating activities.

As credit and banking systems come under the control of the government and as the economic functions of the state become more comprehensive, the dependence of money circulation on credit relations and government finance becomes more pronounced.

The recognition of the unity of monetary, credit, and financial relations is a major methodological principle in planning the circulation of money, credit, and government finance.

In developing countries the capacity of the money and credit system, as well as of government finance, to regulate the course of social reproduction is far less marked than it is in economically developed countries. For in such cases commodity production does not encompass the entire economy, even though it does usually constitute its most important and dynamic part. Within commodity production itself, moreover, pre-capitalist and early capitalist forms prevail, in which the share of internal consumption of output is large and the internal financing of productive expenditures is emphasised. This reduces their linkage with the coun-

try's credit and financial systems. Because of their general socio-economic backwardness, the credit relations of former colonies and dependent countries are less developed. They may be divided into two distinct forms, modern and traditional, both of which lie beyond the range of the government's direct regulation activities. The traditional system includes a diversity of such relations, which are largely based on various forms of usury. The modern credit system is thus limited to major economic centres, including cities and regions of specialised market-oriented agriculture. The monetary and credit systems of many developing countries are strongly dependent on those of leading capitalist countries, and this limits further the relevant control possibilities of national governments.

Nevertheless in the course of general economic progress, as governments seek to widen their influence over all aspects of economic life and follow policies intended to reduce their dependence on industrial capitalist countries, the regulating role of credit relations and state finance gradually increases.

This requires that a number of major problems be solved. These include the involvement of a major part of the country's output in the sphere of commodity-money relations, the creation of stable conditions for money circulation, the establishment of government control over credit relations within the country, the mobilisation by the government of sufficient financial resources to distribute and redistribute national income in such a way as to meet the needs of the country's major tasks of economic and social development, and a utilisation of the monetary-credit system and financial mechanisms for regulating the activities of both national and foreign credit capital and for inducing their participation in the implementation of planned objectives.

The methodological principles that are appropriate for planning money circulation, credit, and government finances follow from the nature of their role within the process of reproduction in the specific conditions that prevail in developing countries.

Money circulation. The basis for the stability of the financial system and hence increasingly of a country's entire economy is the circulation of the optimal volume of money required by the various functions that it serves. This is achieved through the timely issuing of money or else its with-

drawal from circulation. That, however, requires that the country's major accounting and credit institutions, and hence, in essence, the entire banking system, be in the hands of the government.

In terms of its effectiveness, the state's regulation of monetary circulation begins to meet the requirements of planning when, first, it is at least partly based on the planning of production activities and of consumption, and second, on a system of measures designed to meet these requirements through government regulation. Thus the planning of money circulation in developing countries is based on a specification of means and methods of government control and on a regulation of the overall volume of money and of its major flows.

It is the role of money as a means of circulation that provides the methodological basis for the planning, or else the forecasting, of the economic cycle's needs for a particular volume of money. There exists a definite but by no means always direct dependence between the quantity of money required for maintaining economic circulation and the circulating volume of commodities and services.

Within a given period of time each monetary unit may serve the needs of economic circulation more than once. As the rate of money circulation increases, so does the volume of commodity circulation that it serves. The rapidity of money circulation depends on the corresponding organisational forms. Generally other conditions being equal, it is more rapid when a developed network of banks and accounting institutions exists for effecting payments and for holding the monetary means of enterprises and the population. Conversely the rate of money circulation declines in situations in which economic organisations and the population accumulate financial resources in the form of cash.

The second principle bearing on the planning of money circulation derives from the function of money as a measure of value. As it performs its function in its capacity as a token of gold, paper money determines the level of prices. As the nominal value of commodities and services entering into economic circulation increases, so does the quantity of monetary symbols that is needed to make this possible.

The following two principles for planning money circulation derive from the function of money as a means of payment. The first relates to sales on credit in which it is debt-

repayment obligations, rather than money directly, that operate as means of circulation. The latter may take the form of credit money. Eventually, at debt repayment time, such debts are extinguished through the payment of money, which then functions as a means of payment. Economic circulation may also be mediated without the participation of cash through a joint accounting of mutual obligations. Such a form of moneyless accounts is practiced in many countries with the help of specially created debt-clearing centres.

Accounts of this type that rely on "written money" are closely associated with the circulation of cash. For means of payment associated with moneyless accounts are continually transformed into monetary means of payment (for example, enterprises that accept payment in terms of moneyless accounting units for delivered commodities then rely on a bank in order to transfer these forms of "written money" into the cash that they need to pay for wages) and vice versa.

In principle, it is therefore possible to represent the required quantity of money through the formula:

$$M_c = \frac{V - V_c + P_c - V_{am}}{Nmc}$$

where M_c represents the quantity of money required by the process of macro-economic circulation;

V is the value of goods and services participating in macro-economic circulation (for a given level of prices);

V_c represents the value of goods and services sold on credit;

P_c represents payments for past credits that are currently due;

V_{am} is the value of goods for which payment is made in terms of accounting money;

N is the average number of circulations of monetary symbols.

All variables on the right-hand side of this formula must refer to the same period of time (month, quarter, year).

While this formula is relatively simple, it requires a substantial volume of statistics and a system of reliable initial forecasts. It also requires a well organised institutional structure for monetary circulation under which the major flows of money circulate through banking institutions located within the country. In particular, forecasts of the

overall value of commodities and services participating in economic circulation require statistical data reflecting not only the sales of direct producers and importers but of all intermediate trading units as well.

It is especially important to establish the average number of cycles of money circulation within each period. This can be done, however, only by a central bank relying on sample surveys of money bearing particular serial numbers that is returned to its accounts.

The regulation and planning of money circulation is carried out by central banks of issue. The existence of a state monopoly over issuing money is one of the fundamental conditions for such planning. A starting point for such plans is provided by programmes of central banking activities that schedule the issuing of money in accordance with the needs of money circulation, with due account of the absorption of primary money by various financial institutions.

A number of factors may increase the effectiveness of central bank activities in regulating monetary circulation.

Above all this occurs when the sphere of moneyless debt-clearing is extended to encompass not only all state organisations and enterprises but selected private enterprises as well. The development of a network of savings banks and of commercial banks and credit institutions also plays an important role, as do measures that encourage the population and private enterprises to deposit most of their money in national banking institutions.

An important role may be played by regulations that make it mandatory for commercial banks, savings banks, insurance companies and other financial institutions to report their operations and credit activities to the central bank.

While the planning or even goal-oriented regulation of monetary circulation is thus extremely important, conditions that would permit this realistically are seldom present in most developing countries. A number of developing countries following a capitalist approach to development, moreover, possess credit and banking institutions that are controlled by foreign capital and their availability as an instrument for regulating money circulation is accordingly minimal. In other developing countries the greater part of banking institutions is nationalised and is employed by the government to finance state expenditures on a deficit basis.

This often leads to an uncontrolled overloading of circulation channels with excessive volumes of money.

The methods that are employed in most developing countries for monitoring and regulating monetary circulation make it impossible for the government to know at what point the use of deficit financing in meeting government expenditures becomes dangerous for the economy.

The use of deficit financing is based on the view that it is permissible to add money into circulation whenever this is equal to the sum of credits made available by other countries to economic units within the given country and to its treasury. The volume of money includes not only money actually in circulation but also "quasi-money", that is current checking accounts in banks that may be employed for cashless payments, and in certain countries time deposits, including the savings deposits of the population.

Such a method combines economic categories that are in fact autonomous, and in particular the volume of money intended to serve economic circulation with the credit capacity of financial institutions as determined by the inflow of deposits (within the boundaries of liquidity).

This represents a disregard of laws regulating monetary circulation and may lead to serious perturbances. Extension of credit, above all to the state treasury, may be interpreted as a basis for issuing new money, irrespective of whether this is in fact required by the needs of commodity circulation or not.

Increases in monetary transfers from other countries are then reflected in increases in official gold reserves and this results in the issuing of money.

In cases in which there is a positive balance of payments, the bank acquires from exporters and other banks the foreign exchange that they have received and pays for this with additional means of payment that are added to local circulation, even though there are no corresponding commodities to match these increments in the volume of money circulation. At best they are simply exported. Such excessive quantities of money lead to increased prices, or else take the form of deposits that bring about an expansion in bank credit.

In short, the principal shortcomings of such a system for regulating the circulation of money relate to its independence from commodity circulation and to the practice of

central banks that leads them to issue new money whenever credit resources expand.

Even though most developing countries generally regulate the relation between a central bank's credit operations and its money-issuing activities by legislation, and even though in most cases expansions in credit ultimately lead to increases in output, we consider such a system to be insufficiently reliable in serving as a basis for regulating monetary circulation.

Credit relations. Commodity production, together with the utilisation of money as a means of payment, provides the economic basis of credit. In developing countries this means that the sphere of credit is limited to that of commodity-money relations, and above all, to the so-called modern sector of the economy.

In multiple-formation economies credit relations assume differentiated forms, in the sense that within different commodity formations different principles of regulation operate in relation to releasing monetary means and to the need for credit. These are reflected in their capacity and procedures for creating credit.

In most cases credit relations are divided into two independent systems, namely, that of "organised credit", or modern forms of credit, and "unorganised" or traditional forms. In practice, the latter lies beyond the sphere of direct government control and regulation. State financial agencies (ministries of finance, central banks) can influence it only indirectly. In the observations that follow we will therefore refer primarily to organised credit relations which develop on the basis of the credit-creating operations of banking institutions.

It is possible to formulate a number of methodological principles for planning credit. These depend on the particular role that credit plays in conditions to commodity-money relations.

The point of departure in planning credit activities concerns existing possibilities for mobilising the temporarily available monetary means of economic organisations and of the population through credit and banking institutions and other financial institutions (savings banks, credit co-operatives, insurance companies), on the one hand, and the need for credit of different sectors and economic spheres, on the other.

The aim of planning and of other measures concerned with the regulation of credit activities is essentially to achieve a correspondence between such needs for credit and the credit possibilities of a country's financial institutions, and also to regulate credit flows in the light of the general strategy envisaged by the plan and the objectives of socio-economic development, i.e. in the light of priorities in utilising possibilities for credit.

In such a context accounting practices play a major role in planning major uses of credit and debt-repayment dates.

The emergence of credit resources and the development of needs for credit cannot assume a fully planned form in developing countries. Because an important part of internal financial resources of developing countries is produced within the private sector of the economy, where its formation is regulated by the operation of autonomous market mechanisms, it is possible to plan the creation of credit resources and their allocation only up to a certain point. Beyond this, most developing countries cannot avoid relying on external sources of credit, particularly with regard to investments, and it is not always possible to plan these activities in a reliable way.

As a result, the planning of credit activities in developing countries combines elements of forecasting with elements of planning. Nevertheless, the practice of a number of developing countries confirms that by combining a direct planning of a part of credit-creating activities with a goal-oriented forecasting of the entire range of credit relations within the country it is possible to increase the effectiveness of the overall planning of socio-economic development very substantially.

It is particularly desirable to maximise the centralisation of credit resources in the hands of the government and to subject its utilisation to government control in the light of the economic and social goals that are envisaged by the overall national plan. This may refer to the following specific measures.

1. The nationalisation of major credit banking institutions in the country and particularly of those that account for a major part of monetary deposits. Also the establishment of effective government control over the activities of the country's financial institutions.

2. The creation of an arrangement under which either

all of the country's credit resources or else an overwhelming majority of such resources are ultimately held by a limited number of national credit institutions, each of which is authorised to meet the needs of specific spheres and sectors of the economy for both investment credit and short-term credit.

3. The preparation of plans of credit activities for the central bank and for the country's credit institutions that are co-ordinated with overall national plans, particularly with regard to their programmes for the financing of capital investments and the government budget's revenues and expenditures. Depending on specific conditions these plans may contain elements of forecasting of credit activities as well as of planning.

4. A planning of credit policy, including not only the specification of its general principles and objectives, but also specific measures for influencing all aspects of credit relations through administrative as well as economic means. These encompass the development of financial resources, their concentration in credit and banking institutions, and their goal-oriented utilisation. It is important to identify the particular economic spheres to which direct and indirect instruments for regulating credit relations are applied, the nature of other associated measures, and expected consequences.

The regulation of credit activities through the central bank's credit plan provides an instrument of indirect regulation of other economic processes. That plan is itself based on the plans of other credit institutions. Credit plans represent the principal instrument that permits the government to regulate the activities of state banks and of other credit institutions, and also to involve private credit institutions in the solution of overall economic and socio-political tasks.

Credit plans seek to include all planned requirements for credit and all existing sources of credit. They appear as a balance. Aside from operational details relating to applications and sources of credit, they must reflect a credit policy that is differentiated in relation to individual sectors and branches of the economy.

Credit plans derive their objectives from those of national plans and of their sectoral programmes. They reflect a correspondence between material production, on the one

hand, and the dynamics of the temporary availability of monetary means and also of their allocation in the form of credit, on the other. This implies that credit will be made available only for the production and circulation of commodities. This is a major principle of credit policy.

Unlike state budgets, credit balances presuppose the eventual return of expended means. Accordingly, a major element in credit planning concerns the different expected repayment times of different sectors and spheres of the economy.

Disaggregated balances of credit operations record not only the redistribution of funds that ultimately derive from current national income, but also the accumulation of funds, the volume and composition of credit sources, the uses of credit, the volume of cash reserves and the volume of banking transactions. This is the only balance in which it is possible to find approximate calculations of the total monetary funds needed at a certain date or else over a specific period of time. Within the system of financial balances of the government sector credit balances thus play an important function in mobilising financial means and controlling their utilisation.

Government finance. The monetary (financial) resources that are accumulated as a result of realising products of labour and the corresponding financial and credit operations serve all stages of the reproduction process. They also represent a major linkage within the mechanism that establishes proportions in distributing labour and material resources among individual spheres, sectors, and socio-economic sectors of national economies. Government finances play a major role in these operations through the government's ownership of funds and control over their distribution.

The functions that are in fact assigned to government finance in developing countries, and the mechanisms governing the acquisition of monetary resources by the government and their subsequent utilisation are determined by the socio-economic basis of state power. As the functions of government become wider and more diverse and as the scope of its direct and indirect participation in the reproduction process increases, so does the influence of government finance on economic development and on the establishment of economic proportions.

The role of government finance is particularly important in those countries in which a relatively wide economic and socio-political base has been established for regulating economic development through planning (cf. 1.3). The planning of government finance, which is often called budget planning, is usually combined with government regulation over credit and money relations.

Historically, the use of government finance to meet a country's general political objectives is familiar practice. These objectives include the defence of the existing state structure and the needs of state administration.

As for the extent to which state finances are applied to meeting such social problems as the development of education, science, culture, health, social insurance, and satisfying other social needs of different strata of the population, this is determined primarily by the identity of those of them whose interests are reflected and defended by state power. The social functions of state finance are usually much wider in countries that follow non-capitalist approaches to development. In most developing countries the economic functions of government finance tend to expand. These functions may be combined into three groups.

The first relates to the direct participation of the government in the process of production and in investment activities. This is associated with the circumstance that in many developing countries, especially those following a non-capitalist approach, the state takes the basic means of production into its own hands, particularly in industry and in the sectors of economic infrastructure. It therefore provides the major part of capital investments for economic development.

The second group of functions relates to the need to finance government purchases of consumer goods and services. These purchases are carried out by the governments of developing countries for purposes of defence, government regulation, and providing health services and education.

The third group of economic functions of government finance includes the various methods of indirect economic regulation that rely on financial levers. This includes taxation and tariff policies, direct subsidies and credits to the private sector of the economy, and various systems of price support.

The methodological principles that are appropriate for planning state finance activities reflect the requirements of financial relations within the process of social reproduction.

While this may vary with specific conditions, the point of departure in planning state financial activities may be either estimates of state revenues or estimates of the requirements for both short-term and long-term financing. This is followed by a balancing of state revenues and expenditures.

The source of the revenues employed in government financing is the country's national income. This is also the source from which the requirements of personal consumption and of accumulation are met--both of the population and of private firms.

When planning government revenues it is always important to recognise that increases in such revenues reduce the incomes of the population and, hence, the level of personal consumption or else the scale of accumulation within the economy. The possibilities that are available to the government are thus limited by the size of national income and its utilisation for accumulation and consumption. Increases in government revenues beyond the actual revenues of the state treasury, i.e. deficit financing, provides only temporary possibilities for increasing government expenditures. Eventually it always results in a corresponding reduction in the level of consumption or of monetary accumulation in various sectors of the economy.

Financial resources do not appear spontaneously. The volume of financial means that are available to the country is equal to the overall social product, minus that part which is assigned to the replacement of means of production that were utilised in the course of the preceding production cycle.

The practice of preparing state budgets and financial plans in developing countries often ignores this law of reproduction. In many cases government finances are employed in such a way that expenditures exceed the treasury's revenue by a substantial margin. In practice such an approach to planning generally results in a non-fulfillment of government expenditure plans, particularly with regard to capital investments, and hence in delays in the fulfillment of plans of industrial development and in creating elements of infrastructure.

It should be noted in passing that another methodological error in preparing financial plans is also widely used in developing countries. In determining the resources needed for financing capital investments associated with the creation of new government enterprises, planning bodies consider only investments in basic capital, on the construction of buildings and facilities and the acquisition of equipment, but do not consider the need to acquire the corresponding circulating funds (circulating capital) without which enterprises cannot operate in a normal manner. Eventually this results in an underemployment of production capacities and in interruptions in their operations, and therefore in large losses of government financial resources.

Before considering further the planning of government financial activities in developing countries it is important to note that the scope of the concept of government finances may change in connection with the expanding role of the government's economic functions.

Taxes constitute the major source of revenue in developing countries, and account for more than 90 per cent of the revenues of state budgets. They account for the major part of government expenditures within the operational budget, which relates to the government's political and social functions.

In such cases the state budget fully reflects the current state of government finances. Because most developing countries possess a state sector within their economies, which already today often accounts for a substantial part of production and incomes, and because the government itself generally accounts for the greater part of all capital investments into the economy, the concept of government finances is beginning to lose its traditional meaning. The composition of both revenues and expenditures of the state budget are beginning to change.

Traditional budget revenues are no longer able to provide all the resources needed to finance the expenditures that follow from the government's economic functions and entrepreneurial activities. The need to meet the many social problems that confront newly independent governments also produces changes in the composition of state expenditures.

A new major item has appeared within the revenue part of the budgets of developing countries, namely, contributions from enterprises of the state sector. These are no

longer taxes but rather a redistribution of profits and contributions to centralised depreciation funds. In addition, a part of state revenues may originate in credits provided to the state treasury by national deposit banks, and sometimes by central banks of issue.

When government finances are largely supported by taxes they produce a redistribution of that part of national income that is initially available for consumption. At the present time the role of government finances in the redistribution of the consumer part of national income (in favour of social consumption) is increasing in most developing countries, and what is particularly important, state finances are being transformed into means for redistributing the accumulated part of national income. They are employed by the government to actively influence the establishment of basic national economic proportions and the overall structure of the production and consumption of the gross social product.*

Naturally, such an expansion of the composition and functions of state finances calls for a particularly careful approach to their planning and for a rigorous co-ordination between the planning of state finances and the monitoring of credit capacities of banking institutions and of the state of the financial resources of enterprises within the government sector, as well as of possibilities for attracting external sources for financing government capital investments.

In developing countries, including those in which credit and banking institutions are in the hands of the government, the planning of government financial activities is largely based on forecasts and estimates. This is even true of standard planning budgets. Their revenues are based on forecasts, since the volume of taxes from enterprises within the private sector and revenues from turnover tax and from other fiscal revenues depends on the state of internal and external markets, the volume of production ac-

* Yet it would be a mistake to conclude that government finances then also include the monetary resources of enterprises within the state sector. The finances of state enterprises and sectors representing autonomous economic organisations continue to retain their independent meaning, even though a part of their financial resources participates in the sphere of state finance in serving overall national interests.

tivities, the sales of output produced by private enterprises and other autonomous factors. Nor is it possible to plan with any precision the credit-creating capacities of national banking institutions based on deposits of state and private enterprises and on savings of the population. When corresponding agreements and contracts exist, however, it will be possible to establish more accurately the volume of foreign assistance that will be assigned to the financing of capital investments.

In view of the nature of the functions that government finances in developing countries may assume it appears to be appropriate to construct at least two types of state budget: a) an ordinary (current) budget and b) a developmental budget (for equipment and capital investments) that reflects planned government expenditures on economic development (primarily capital investments and various subsidies). The corresponding sources of financing, aside from means available from the ordinary budget, may be various types of redistribution from enterprises to the state sector, bank credit, external credit, loans and subsidies, and direct credits from the state treasury. The state's development budget may be integrated with the plan of credit activities within the national banking and credit system.

The planning of budgets has preceded general economic planning in developing countries. State budgets continue to remain one of the major forms for representing medium-term development plans in operational terms. From a methodological point of view their preparation is reduced to the solution of the following basic problems: 1) identifying real proportions between expected economic development and possibilities for mobilising state financial resources; 2) establishing the scale of the government's requirements for financial resources with particular reference to operational as well as capital expenditures; 3) identifying major types of state expenditures and their priorities in the light of the dominant tasks of socio-economic development envisaged by the plan; 4) providing for a balancing of state treasury revenues and expenditures.

The solution of all these problems is based on the direct redistributive functions of state finances. Equally important, however, is the monitoring and planning of their control functions, and hence an approach to the preparation of

the entire financial policy of the government, including its taxation and credit policies, from the point of view of the manner in which this encourages or else inhibits the development of individual economic sectors and lines of production.

Thus, for example, the major part of the government's tax revenues in most developing countries is currently met through indirect taxes that are ultimately paid by purchasers of consumer goods. Increases in the standard of living of the corresponding strata of the population may be accompanied by a greater differentiation of taxes so as to reduce taxes on basic necessities and increase them on luxury goods or consumer durables. Increased indirect taxes on imported goods may also be employed to encourage the domestic production of mass consumption goods and reduce their importation.

In the case of developing countries, however, it may be more effective to alter the composition of such taxes by increasing the share of direct taxes while creating a greater differentiation in the incidence of indirect taxes on various types of revenues and profits.

In many developing countries the savings possibilities of urban and rural small-scale commodity producers are limited by their reliance on an elaborate network of commercial intermediaries in marketing their output. These retain a large share of the overall revenue. The introduction of progressive rates of direct taxation on incomes and profits may lead to a substantial improvement in the position of small-scale commodity producers while also yielding additional sources of revenue to the government.

A major element in improving the operation of state financing and the effectiveness with which the centralised fund of financial means is employed concerns the development of effective forms for organising the country's entire financial structure. This includes rigorous control over revenues from taxation and especially over the utilisation of government financial resources in accordance with the specifications of both the overall plan of national economic development and the financial plan.

The experience of many developing countries confirms that the effectiveness of financial planning, as well as of national planning itself, increases substantially when financial plans are developed in close association with the pre-

paration of national plans, and when the activities of ministries of finance and of central planning bodies are systematically co-ordinated.

3.3.3. External Economic Relations

With regard to their role within the overall system of reproduction, external economic relations are relations of distribution and exchange that arise when a part of the gross social product or income produced within a single country is employed or consumed in another country. The following three basic types of external economic relations are usually distinguished: foreign trade, which includes imports and exports of commodities; exchanges of various types of services (transportation, communications, transfers of scientific and technical documentation and information); and the movement of capitals and revenues.

Ultimately all these types of external economic relations produce monetary relations of the payment and accounting type, which are reflected in the country's corresponding balances. External economic relations produce a linkage between the reproduction processes in individual countries and influence substantially the scale and composition of both production and consumption activities, as well as the relations of output and exchange. International exchange influences differently reproduction in its physical and its value form. Beyond this external economic relations may produce substantial changes in the relative weight of planned and autonomous forms for establishing macro-economic proportions.

Exchanges of commodities and services with the external world produce discrepancies between the physical structure of production and that of consumption. A country's participation in the international division of labour alters the conditions for balancing production and consumption in terms of physical indicators: excesses of output alter internal consumption of some types of commodities and services or compensate it through their exports; at the same time an insufficient level of internal production of other types of output is compensated by consuming imports. In such a context an important role is played by a corresponding "physical" planning, that is, the preparation of physical balances that include exports as one of the forms of final

consumption (from the point of view of national economies) and imports as a channel for acquiring resources.

In principle a country's participation in the international division of labour does not eliminate the need for balancing production activities at the national level with the consumption of gross social product in its value form. It does alter, however, the conditions for achieving the needed correspondence. The factors that determine that proportion now include value proportions expressing the terms on which commodities and services exported from the country are exchanged for those that are imported. These depend on price levels on external markets, which may differ substantially from domestic prices.

More specifically the process of reproduction depends on two types of value proportions, namely, proportions between the total value of commodities and services exported and of those imported into the country (valued at external market prices), and proportions between the value of the country's gross social product (including the part produced for export purposes) and the total value of commodities and services consumed within the country (originating both domestically and from imports, at domestic prices).

A country's participation in the international division of labour and international exchanges of goods and services may produce situations in which the value of the consumed products may be either more or less than the value of the gross social product created within the country. In the first case the country must import more commodities and services than it exports, and pay for that difference with foreign currency reserves or else by attracting additional financial resources from abroad (the importation of capital for one-sided transfers). This means that ultimately it spends more than it produces. In the second case exports must exceed imports and ultimately this means that the given country offers to other countries the corresponding amount of credit from its own national income.

It follows that, aside from estimating balances of exports and imports of commodities and services in value terms, it is also necessary to estimate balances of inflows and outflows of financial resources of capital and income.

Both the methods and the possibilities for regulating that process are largely determined by the influence of ex-

ternal economic relations on the process of reproduction. This is particularly true of those elements of regulation that depend directly on external economic relations. Even in cases in which conditions for a planned approach to reproduction do exist in the country, a strong dependence on external factors may, because of autonomous processes establishing proportions on external markets, intensify elements of internal autonomous development.

A major characteristic of external economic relations is that their participants or organisations belonging to different countries are politically and economically independent. A government is only able to control and regulate the external economic relations of its own organisations and citizens. Yet any form of management and regulation requires the co-ordination of the activities of all participants in a corresponding process. This has produced a large number of intergovernmental (bilateral and multilateral) agreements and organisations charged with regulating international economic relations at the inter-nation level.

National plans for developing external economic relations are therefore more likely to succeed when they are based on some intergovernmental mechanism for controlling and regulating economic relations. Of these the simplest one is a mutual agreement to co-ordinate programmes of governing relations between two or more countries. A more complex form are international commodity and other economic agreements. While intergovernmental forms for regulating external economic relations are employed increasingly widely in developing countries, they are still far from being able to provide a satisfactory basis for corresponding national plans and programmes.

In undertaking state planning activities and operational regulation activities in the field of external economic relations the *nature* of the internal economic processes (both in production and circulation) with whose continuation they are concerned, is of considerable importance. In particular, it is important to know the extent to which these processes are planned and the extent to which they are autonomous. Other conditions being equal, better conditions exist for state planning when both internal economic processes and their external economic "prolongations" are effectively controlled and regulated (either directly or indirectly) by national governments.

The role of external economic relations in the economic life of most developing countries is very great. In particular, by far the greater part of their needs for equipment and many other means of production is met through imports. Imports also play an important role in the population's demand for many industrial commodities, and often for food products as well. By far the greater part of the output of extractive industries and of many types of agricultural commodities cannot be sold on the domestic markets of developing countries, and are exported. Most developing countries rely extensively on the importation of capital for purposes of economic development, and many of them are still completely unable to provide for the needs of expanded reproduction without inflows of capital from abroad.

On the whole, however, possibilities for planning external economic relations in developing countries are limited, and programmes for developing them are usually based on either ordinary or else goal-oriented forecasts.

The likelihood that forecasting plans for developing external economic relations will succeed increases when the government establishes a monopoly over particular types of external economic operations, such as the export or import of basic commodities and services, foreign exchange transactions, and strict regulations of imports and exports of capital. They are also more likely to succeed when plans for developing external economic relations are based on corresponding intergovernmental agreements and long-term contracts.

While the general approach to preparing plans for developing external economic relations and also the nature and range of indicators that they include will depend on the specific circumstances and objectives of national economic development and on the nature of the country's external economic relations in most developing countries, it appears to be desirable to prepare separate programmes for various forms of external economic relations. These should be aimed at solving specific large national economic problems and achieving balances designed to co-ordinate individual programmes for developing external economic relations both with each other and with other sections of overall national plans.

Programmes of export activities are prepared for a limited range of commodities playing a leading role in the

country's exports. They are partly based on plans for developing the production of these commodities and on their expected consumption in the country, and partly on estimates of possibilities for selling them on external markets in the light of existing agreements, contracts and forecasts. In such a context the forecasting of prices plays an important role.

In most developing countries programmes for imports refer to two or three groups of commodities that account for most of their value. These groups include machines, equipment and other types of investment goods (rolled metal, cement); major types of food products (cereals, sugar); and industrial consumer goods (whenever their relative weight within imports is sufficiently large).

Calculations of the requirements for importing machines, equipment and other investment goods should be based on data relating to major industrial, infrastructure and other projects envisaged in the corresponding plans. Similarly, requirements for importing food products and industrial consumer goods are calculated in the light of domestic production activities in these areas and of the population's demand as indicated by its increase in numbers. An important element in these calculations is provided by forecasts of expected conditions on external markets, and especially of possible changes in prices.

Programmes of capital movements play a very large role in many developing countries, since not only the current state of their balance of payments, but also possibilities for meeting capital investment plans depend on their availability. The corresponding estimates are based on capital investment plans and particularly on state capital investments, and on programmes for financing them from internal sources.

Individual programmes for developing external economic relations are co-ordinated with each other and with the plan's macro-economic characteristics. This is achieved through a number of balance calculations of a forecasting nature, including balances of exports and imports of goods and services in value terms, of the balance of payments, of an aggregate balance of available and utilised goods and services, and also of a balance of produced and utilised national income (with due account of the external balances).

Forecasting methods are employed to estimate the volume of exports and imports of commodities in value terms (not included in specific programmes), the net external balance of services, and other items within the balance of payments.

A concluding stage in preparing the state of the overall national plan devoted to the development of external economic relations concerns the preparation and specification of programmes of concrete economic policies intended to permit the state to manage and regulate external economic relations. These include internal measures, such as the regulating of trade activities and capital movement, and also intergovernmental agreements and contracts.

3.4. CONSUMPTION

Consumption represents both the concluding stage of each reproduction cycle and the initial basis for the subsequent cycle. It is in order to satisfy man's requirements for a diversity of material and spiritual wealth that production activities take place. Production makes no sense without consumption.

Depending on the nature of the products being considered and their role in the subsequent process of reproduction, consumption activities are divided into two types, namely, productive and non-productive. This already determines fundamental distinctions in the methodologies employed in planning these two types of consumption. In addition, productive consumption itself is not homogeneous. Fuels, raw materials, other materials, and objects of labour, as well as certain instruments of labour, lose or else alter their form in the process of production, and their value is immediately embodied in new products. From the point of view of the final objectives of production this represents intermediate consumption. Machines, on the other hand, and also equipment and structures, as well as productive buildings and facilities, are employed repeatedly in production and embody their value into new products gradually in the course of their total length of service. While this is partly arbitrary, the corresponding part of productive consumption is associated with final consumption. For a growth of capital to take place it is necessary that only a part of the product be assigned to non-produc-

tive forms of consumption and to the replacement of means of production expended in the course of the production process. A part of it must be accumulated in the form of additional basic and circulating productive assets. That part of the product which is accumulated is then employed for expanding production. Thus accumulation represents a special type of productive consumption, and this provides grounds for viewing it as an independent stage in the process of reproduction.

The principal form of non-productive consumption is personal consumption, both individual and social.

An important element in regulating social consumption concerns the principles that determine the manner in which each member of society receives a share of the funds that are assigned for that purpose. Major forms of social consumption include education, health, culture and social services, i.e. the services of sectors of so-called social infrastructures. Non-productive consumption also includes those consumption activities of the government that are associated with the performance of its political functions and with its role in the operation of social infrastructures.

In considering the methodological problems that attach to planning consumption, emphasis will be given to personal consumption and to the major forms of social consumption associated with education and health. In addition, in view of its growing role in developing countries, the consumption activities of the state will also be considered.

Since major issues relating to intermediate productive consumption were considered in the section devoted to the methodology of planning production activities (cf. 3.2) only additional observations will be made in the present section.

The methodological problems that arise in the planning of the accumulation and replacement of basic and circulating assets are considered in the chapter entitled "Accumulation and Capital Investments" (3.5).

3.4.1. Personal Consumption

Personal consumption is an element in the process of social reproduction that is particularly complex. It is still poorly understood and does not lend itself readily to government regulation.

A diversity of factors influence personal consumption, including economic, social, natural-climatic and political factors. For example, even for a given level of income, the composition of consumption of urban and rural residents will differ considerably. This is also true of residents of different climatic zones. The composition of consumption is also influenced by customs, traditions, family status, and the population's age composition. In the context of planning activities concerned with national economic development it will therefore be useful to examine only some major aspects of personal consumption and some of its major trends. The aspects that should be considered include the general level of personal consumption, its dynamics over the planned period, and its value and material composition both for the country as a whole and in terms of the shares of major social groups of the population and of the country's major regions (including rural and urban districts). From a methodological point of view it is desirable to select from the entire range of factors influencing consumption those that are most dynamic and that bring about the most rapid shifts in its composition. These include: a) the average level and deviations in the population's monetary income; b) the distribution of "free" goods and services, either in the form of physical payments or else in the form of services from social funds; c) the relative prices of major types of commodities and services. Together with some less important factors these are the three groups of conditions that largely determine the level and composition of the population's effective demand.

Matching such an effective demand there will be an aggregate of goods and services that are offered to the population. These are drawn from that part of local production which is assigned to the internal market and also from imports. There exists a balance relation between effective demand and that aggregate volume of resources in the sense that their volume and composition must correspond to each other, if the process of realisation is not to be disrupted. But these factors also interact and influence each other. In particular, the consumption fund influences the formation of demand, while demand generates supply and influences the composition of the consumption fund. The principal methodological problems in planning personal consumption may be reduced to the following: a) fore-

casting the level, rate of change, and composition of effective demand; b) the planning or forecasting of the consumption fund; c) the identification of measures of state economic policy intended to bring about a correspondence between effective demand and the supply of present services to the population.

These problems may be solved only when the required information is available, i.e. when statistical data exists concerning such items as the level of income of individual groups of the population, the size and composition of family budgets, and trade statistics.

The initial basis for establishing the level of incomes of the population is provided by reports and forecast data concerning the level of national income and the shares assigned to consumption and accumulation (cf. 2.2.2 and 3.1.3).

The size of that part of national income that is assigned to consumption, minus the consumption of the state itself and also social consumption, determines the general magnitude of the population's personal income. But in order to forecast consumption more precise data are needed describing levels of incomes and the composition of the effective demand for individual groups of the population.

Three groups of models are generally used in forecasting demand and consumption. Yet because of the complexity of the process of formation of effective demand and consumption (because of the influence of a multiplicity of factors and because of the inadequacy of initial information) none of them is able to fully establish their level and composition.

The models in the first group, namely, so-called constructive models, are based on consumption budgets. The overall level of consumption is calculated as the sum of the products of the quantities of goods and services appearing within the consumption package and their prices. Such an approach to the forecasting of consumption is justified when it is possible to establish the manner in which the relative weight of individual goods and services is expected to change.

The second group of models is called structural models. It is based on the assumption that there exist groups of consumers whose consumption is relatively stable over time. All changes in the levels and composition of consumption

are then associated with changes in the number of persons within each consumer group. The latter are usually defined in terms of particular levels of income. When sufficiently reliable data does exist concerning the incomes of individual groups of the population and also concerning representative budget packages for each group, such a method can produce reliable forecasts, providing, of course, that relative prices within the forecasted period will remain stable, so that the basis of classification will not be affected.

The third group of models is called analytical models. They express the assumption that any one type of commodity, or else particular group of such commodities, is a function of a specified number of factors. Accordingly such models are generally employed to solve more specific problems. The main problem, however, then concerns the finding of correlations that express the dependence of demand on the selected factors, such as, for example, the coefficient of elasticity of demand for a particular commodity in relation to other average incomes or the income of a particular class of consumers.

Ultimately, planning and forecasting calculations relating to personal consumption represent balances of incomes and expenditures of the population. The composition of these balances may vary, depending on the specific task that is envisaged and the initial information, but in all cases it describes the correspondence between the population's overall income in terms of types of income (population groups) and expenditures on the acquisition of goods and services (in terms of their sources, nature, type, etc). The main objective of planning consumption activities is the preparation and implementation of measures of economic policy that regulate effective demand and personal consumption. Three groups of such measures may be distinguished that differ in terms of the nature of their influence.

1. Measures that regulate the levels of income. These include the establishment of minimum and maximum levels for wages, the establishment of specific wage scales for different types of employees, taxation policies, and the payment of pensions and other transfers.

2. Measures that permit the government to influence effective demand and consumption by regulating the prices

of goods and services (through a direct control and regulation of prices, through policies of indirect taxation, of consumer credit, etc.) and also through measures that influence the savings of the population (e.g. measures that attract savings to savings accounts and to insurance organisations).

3. Measures that permit the government to affect the composition of consumption by creating a specific composition of supply and by influencing the development of needs on the part of the population (by increasing supplies entering distribution networks, encouraging enterprises producing particular types of goods and services, with due account of their mutual substitutability, and advertising campaigns).

3.4.2. Social Consumption

Education. Education is one of the leading forms of social consumption. Different forms of education, however, influence the system of reproduction in very different ways.

In principle, only general education belongs to social consumption. This creates only the most general basis for the reproduction of the labour force. Specialised forms of education are designed to prepare labour forces possessing specific characteristics and able to operate in specific areas of the economy and of social life. While general education may be viewed as a form of personal consumption largely supplied from social funds, by far the greater part of specialised education activities which are concerned with the preparation of trained personnel, gravitates towards consumption of the productive type. In short, by far the greater part of specialised education is a form of economic activity that is comparable to the creation of all other material factors of production. There, too, however, the preparation of specialists intended to work in a non-productive sphere (general administration, police, the army, etc.) represents non-productive expenditures and belongs to the sphere of personal (social) consumption. From the point of view of general economic theory and planning methodology general and specialised education may be viewed as two different and independent processes that require different approaches, strategies and methods of planning.

Let us consider first the general problems of planning general education. Problems relating to specialised education and to the training of personnel are considered in section 3.6.

The overall development of education continues to be one of the major tasks confronting the governments of developing countries. The fact that by far the greater part of the systems of education is in the hands of the government greatly facilitates the solution of that task. The general socio-economic backwardness of such countries, however, represents a serious obstacle to the development of education. Another inhibiting factor is of a subjective nature, namely, an underestimation of the importance of education, since expenditures on education generally yield results only after a considerable length of time. Above all, the planning of education calls for strategies that are applied over prolonged periods of time, since persons entering primary school will enter the labour force beyond the terminal year of usual planned horizons.

The socio-political and economic aspects of strategies for developing national education do not always coincide. While many stages may be incorporated in a long-term plan, including the general overcoming of illiteracy, universal primary education for the new generation, the development of capacities for universal secondary education, and the improvement of the entire education system, their solution relates to periods of time that are relatively distant from the problems of current economic development and from the current economic possibilities of developing countries. Yet it is also true that it is impossible to overcome economic backwardness and achieve radical increases in the development of productive forces without developing national education. Modern economies require a certain level of general education. In particular, a certain level of general education is a prerequisite for training professional personnel and for various forms of specialised secondary and higher education.

Accordingly, in designing appropriate education strategies and in developing plans of education that represent concrete embodiments of such strategies it is important to relate a country's requirements for primary education to feasible prospects for financing its development in terms of the required material resources and personnel, with due

consideration of the urgency of other tasks of socio-economic development. In such a context the lower boundary of a country's requirements for primary education may then be inferred from the long-term objectives of national economic development and of the delays that attach to meeting their requirements for trained personnel.

An important aspect of planning education activities concerns their linkage with the needs of economic development and also the need to combine primary education with the development of the elementary working habits and general forms of knowledge that labour activities require.

The large-scale development of general education, and particularly of primary education, requires more comprehensive socio-economic prerequisites than may at first appear. Important obstacles are created by the low standard of living, illiteracy, and cultural backwardness of wide strata of the population. This requires additional expenditures, the creation of networks of boarding schools for the children of the poorest families, and free text-books and manuals for some of the children.

The many problems that confront education in developing countries are reflected in corresponding state plans. This includes the creation of appropriate proportions between increasing the number of general education schools and improving the quality of educational services; the encouragement of school attendance by children and young persons from the lower income groups of the population (for example, from families of poor peasants and from poorer urban families) and increasing the proportion of girls attending schools; and encouraging education in the country's least developed regions that are especially backward in the economic and social sense.

An important aspect of such planning activities concerns further improvements in the structure of the educational system, both from the point of view of the role of various stages and forms of education in it, and from the point of view of different types of education. It is important to adapt the contents and quality of education to changing requirements for particular levels of training. This includes improvements in teaching programmes and in the skills of teaching staff, the introduction of new methods of teaching, in forms of linkage between theory and practice, and in the organisation and direction of educational systems.

The development of education is a trend of the government's activities that requires their decentralisation, so that maximum consideration may be given to local socio-economic conditions. Together with medical services general education is also one of the major elements of territorial planning (cf. Section 5).

Another feature of educational planning is its long-term character. In view of the length of time that is required for schoolchildren to be drawn fully into social life, long-term plans of the forecasting type must encompass periods of 15-20 years and should be co-ordinated with overall national plans and long-term demographic forecasts.

Medium-term programmes for developing education systems are based on various types of project-oriented calculations. These must be closely co-ordinated with each other and also with other sections of overall national plans. Such calculations relate to the construction of new schools, supplies of materials and equipment for them, their financial needs, and the publication of text-books. It is also necessary to consider their operating requirements and requirements as regards material supplies for students whose parents belong to the lowest income groups.

It is impossible to carry out plans in the field of education unless corresponding teaching personnel is available. Since the training of such personnel requires many years, the corresponding activities, too, call for long-term plans.

Health services represent a major sphere of social consumption. The highly specific services that it delivers to the population are intended to maintain the health of the population which is society's primary productive force. The aim of the health services system is to prevent illnesses and to restore a capacity to work when health is impaired. While the social significance of these activities is very great, its economic significance is equally important, since, together with other spheres of consumption, health services ensure the functioning of the labour force.

The level of health services in the majority of developing countries is quite low and lags far behind modern requirements. This is one of the expressions of their general level of socio-economic backwardness. Health services are used primarily by the wealthy strata of the urban population, while the labouring members of the population,

particularly in rural areas, receive extremely insufficient medical assistance.

Chronic malnutrition and poor living conditions resulting from poverty and backwardness cause a large number of various illnesses. In the absence of required medical assistance this leads to a high mortality rate both in urban and in rural districts. Chronic illnesses are widespread, and reduce the population's capacity to work.

This explains the social and economic urgency of a rapid development of medical services and also identifies the corresponding major tasks, namely to intensify activities directed against all illnesses, to increase the overall level of health among all strata of the population, to provide quality medical services to the population in easily accessible ways, to improve the sanitary level of both urban and rural settlements, and to improve working conditions.

As in the case of education, the requirements of health services are met from the national consumption fund, which itself derives from national income. It is therefore the rate of growth of national income that determines the rate of development of health services. Urgent though it may be, the problem of overcoming the underdeveloped state of health services can normally be met only to the extent that this is made possible by the general state of the country's economy.

National programmes for developing health services are partly based on forecasts of population growth and partly on analysis of specific types of illnesses and of the frequency of their incidence. This makes it possible to determine the nature and scope of various feasible measures for providing effective medical services to the population. Such programmes usually relate to individual projects of national as well as of local significance. As in any other case their implementation calls for the necessary material resources and financial means and for their rational distribution among different areas of the country and also over time. That, in turn, calls for the corresponding types of project and technical documentation as well as for the necessary labour force and trained personnel required by the construction of corresponding projects and their subsequent operation. The major "physical" indicators of such programmes for developing health services relate to the availability of medical personnel, to the construction of

hospitals and clinics, and to the numbers of available hospital beds.

The long-term planning of health services (for periods of 15-20 years) requires general forecasting reference indicators that then make it possible to calculate the required number of medical personnel and to initiate its training. Such calculations may be derived from forecasts of population growth and of changes in its age and sex composition. It is then possible, with the help of international comparisons, to apply specific norms (for example, the number of doctors, hospitals and hospital beds per ten thousand persons) to determine the general manner in which the development of medical services should proceed.

Short-term plans are concerned with specific tasks that must be solved in implementing particular projects. This may refer to the numbers of hospital beds required by the end of the planned period for both rural and urban in-patient establishments, to provide the needed throughput capacity in clinics and medical assistance centres, and to increases in the number of doctors and other medical personnel.

The implementation of such planned indicators calls for corresponding capital investments and operating expenditures by the government. Generally the objectives of short-term plans are, first, to achieve tasks that are specified in long-term plans, and, second, to meet urgent problems that arise within a given period (e.g. preventive measures in relation to contagious diseases, and emergency measures in the event of epidemics).

3.4.3. Government Consumption

Government consumption activities provide for an uninterrupted execution of various functions of government, including political, social, and economic ones.

Government consumption may be defined in a wide as well as in a narrow sense. The first meaning includes the entire consumption of the government, including not only that of its administrative services but also that of the state sector within all branches of the economy's productive and non-productive spheres. The second refers to the consumption of its administrative services alone. In the sections that follow we will consider the principal features of the meth-

odology that is employed in planning government consumption in the narrow sense. Those forms of government consumption that are associated with its entrepreneurial activities in sectors within the productive sphere and also with the development and functioning of social infrastructures are considered in the corresponding sections of this study (cf. 3.4.2; 3.4.4; 3.5).

The planning of government consumption pursues two aims: first the uninterrupted performance by the government of all of its socially necessary functions, and, second, a rationalisation of the structure of non-productive government expenditures in order to reduce them as much as possible. In this regard one may distinguish three major stages in the development of government plans: determining the volume and composition of government consumption over the planned period; financing the corresponding requirements; and supplying the required materials and equipment. Even though these three stages are distinct, they are also closely related to each other. Government consumption activities lend themselves particularly well to centralised control and may therefore appear as direct objects of planning.

In most developing countries a sufficient organisational basis for such a planning exists only at the level of central government bodies. There is generally a great measure of autonomy on the part of regional and local bodies, and this makes it impossible for the central government to regulate effectively or comprehensively the scale and composition of their consumption activities. At the present time the planning of government consumption must therefore take place autonomously at each level of state power, i.e. by the central administration, at the level of regions and provinces, and at the level of local bodies.

As a result, government consumption plans are usually a sum of programmes that are developed autonomously at corresponding levels. Yet it is vital that the activities of all levels of state power be co-ordinated and that a definite measure of centralisation exist in this regard. This follows from the need for a general increase in the scope of government activities and their overall role in socio-economic development. In such a context planning is employed as a means for rationalising all government activities, and in particular for creating an organisational basis for co-or-

minating them at all levels and for centralising their regulation.

It is desirable that the planning of government consumption be carried out in accordance with the following scheme. Lower-level bodies forward projects relating to their programme to the next upper level. There they are analysed, elaborated and approved, following adjustments, before they are returned downwards for implementation by lower-level bodies.

Current government consumption activities include the services of government employees and also commodities and services originating in different sectors of the economy. The level of supply of services by government employees, or more precisely of government expenditures for payments of these services, lend themselves to planning relatively well, providing that both central and local government bodies adhere to budgeted constraints on finances and personnel. It is more difficult, however, to establish the corresponding levels of consumption of commodities and services over a planned period.

No norms or coefficients are usually available to link government consumption of commodities and services to levels of activity of government administration. It is therefore usually necessary to employ methods of planning that rely on the achieved state of development as a basis for further calculations. Two such methods exist. In the first the current level of consumption of commodities and services in physical units is used as a point of departure, and adjustments are then made for new levels of consumption and expected changes in prices. In the second a point of departure is provided by the level of expenditures on acquiring goods and services in a base period, and preliminary adjustments are then made in the light of desired increases in the activities of corresponding government bodies as well as of expected changes in prices. Such an approach to the planning of government consumption and to associated financial expenditures may result in an overspending of means assigned to the state budget. But this may be avoided through appropriate forms of organising the supply of different services to government bodies at various levels and of controlling corresponding expenditures. In particular, the following measures may then play a substantial role:

1) the establishment of rules under which increases in numbers of government personnel require the approval of higher level bodies and are controlled by state financial agencies;

2) the establishment of specific ceilings on the salaries of employees of all government ministries, agencies, and services;

3) the maximal centralisation of government purchases of goods and services in specialised government services;

4) the establishment of a system for controlling the prices that are paid for goods and services purchased by state organisations;

5) the organisation of comprehensive accounting procedures for all government agencies and of control by financial bodies over expenditure on goods and services.

3.4.4. Productive (Intermediate) Consumption

Intermediate consumption is one of the elements of reproduction. All production processes require uninterrupted intermediate consumption activities. The role of intermediate consumption in economies increases as productive forces develop, as the structure of production becomes more complex, and as the complexity of systems of division of labour increases. A substantial share of output is created for purposes of intermediate consumption serving further production. This is true of fuels, raw materials, ferrous and non-ferrous metals, wood, plastics, textile fibers, and many other materials, individual parts, units and assemblies, as well as of all kinds of productive services. Their continual circulation constitutes the organisational basis of modern production activities.

This type of consumption possesses a number of traits that are reflected in the methodology required by corresponding planning activities. One group of sectors produces means of production, while others produce consumer goods. The resulting highly diverse and remified flows of goods and services that link individual sectors of the productive sphere are a major element of intersectoral and intrasectoral relations. The planning of such intrasectoral and intersectoral flows of commodities and services is the major form of planning in the case of intermediate consumption. Individual products and services may be assigned either

to intermediate or to final consumption. They may also be assigned to exports, while a part of intermediate consumption is met from imports. A part of such means of production is assigned to the accumulation of either basic or circulating capital. Production and consumption activities usually overlap in time. Outputs may accumulate and are then added to stocks.

The planning of intermediate consumption is thus closely linked to the planning of the entire process through which the realisation and circulation of goods and services takes place. In establishing a correspondence between output and intermediate consumption all other types of goods and services must be considered and also their participation in the sphere of international exchanges and in accumulated stocks. Initial calculations in planning intermediate consumption are based on the volume and physical composition of production in consuming sectors. This makes it possible to establish their current requirements for means of production and services, i.e. the levels of intermediate consumption (on the basis of past experience, as reflected in statistical data and reports, and of existing norms for expenditures of energy, fuel, raw materials, other materials on the production of particular types of output). A second stage in such planning calculations concerns the calculation of requirements for other types of goods and services that also enter into final productive and non-productive consumption and exports.

The next task concerns the matching or corresponding goods and services that are expected to be available (from production and imports) with their aggregate consumption. This may be achieved in the following ways: 1) through the use of intersectoral balances in value terms that provide an aggregated representation of available goods and services and of their utilisation; 2) through the use of intersectoral balances in physical terms for one or several products; and 3) through the use of standard balances in physical terms (cf. Section 5). In many developing countries and particularly in the less developed ones, the size and diversity of intermediate consumption activities are very modest, and they are mainly served by imports. This does not reduce the importance of planning intermediate consumption activities, and frequently makes such planning more difficult, since the establishment of new centres of

production introduces substantial changes in the level and composition of intermediate consumption activities, and makes it impossible to rely on extrapolation procedures or planning techniques based on "the currently achieved state". But because imports usually provide the principal source for new types of intermediate consumption due to the low level of domestic production, possibilities for meeting other economic objectives may be influenced adversely by unexpected increases in imports.

Accordingly, whenever projects of a productive character are present in implementing plans, it is desirable to first establish the nature of the new and stable intersectoral relations that they will produce and the sources from which their future operational needs for energy, raw materials, and other types of intermediate consumption may be met.

3.5. ACCUMULATION AND CAPITAL INVESTMENTS

Accumulation is a process that increases national wealth. It becomes possible whenever less than the entire social product is consumed by society and a part of it is assigned to increasing social wealth. The source of accumulation is that part of the surplus product created in the course of production that is not consumed. While the surplus product is created in the productive sphere it serves accumulation in the non-productive sphere as well, and is expressed in the corresponding increases in both types of assets.

The process of accumulation thus influences directly the entire structure of production, as well as the major macro-economic proportions and the proportions between the productive and the non-productive sphere. At the same time it not only reflects the relations of distribution of the product and income produced by society but also influences the reproduction of social relations and the economy's social structure.

Accumulation may take the form of capital investment into both productive (basic and circulating) assets and non-productive assets. But aside from capital investments that embody the process of accumulation (net capital investments) there exist capital investments that reflect the process of the replacement of utilised productive funds. The

total volume of these two types of capital investment is usually called the gross capital investment.*

During each cycle of production the value of basic productive assets (basic capital) is gradually transferred to the value of the product being created (is amortised), even though physically these assets continue to operate until they are fully worn out. It is this that makes it possible to accumulate the corresponding means and to subsequently invest them into productive assets of another physical composition and in other spheres and sectors of the economy. Accordingly, not only net capital investments but gross capital investments as well operate as a major factor influencing the future structure of the economy, of its productive sphere, and the entire physical composition of its basic and circulating assets.

In the case of commodity production the movement of productive and non-productive assets (their accumulation and replacement) that is mediated by capital investment occurs in two forms, as does all social reproduction, namely, in a physical form and a value form. A major methodological principle in planning capital investments relates to the recognition of their ever-present unity. In practical terms this means that it is necessary to plan for the creation of conditions that make it possible for the financial resources assigned to capital investments to assume the particular physical composition that is envisaged by the plan. In other words, relevant plans must be based on a correspondence between the magnitude of the value of capital investments and the availability (in terms of quantity, composition and value) of machines, equipment, materials, services, labour power, etc., required for the replacement and expansion of basic and circulating assets.

It is precisely the presence of these two forms of movement of assets and the possibility of their temporary differentiation that causes capital investments to operate as a major factor in transforming both an economy's production structure and its social structure. Whether it is autonomous, or planned and consciously regulated by society, the redistribution of capital from some sectors of the economy to

* In the absence of an explicit statement to the contrary the term "capital investment" will refer to gross capital investment.

others is made possible by a temporary differentiation of accumulation in its value (monetary) form.

The need for capital investments to replace and expand assets follows from their "physical" state and the wear and tear and obsolescence of existing assets, the need to create new productive capacities and to develop the non-productive sphere. The initial point of departure for planning capital investments is provided by macro-economic requirements of the desired physical expansion and replacement of basic and circulating assets. In this connection attention should also be given to estimates of the non-productive sphere's requirements for capital investments, especially of projects whose realisation is needed for solving social problems.

A second point of departure in planning such capital investments is provided by a knowledge of the financial resources that are available for capital investments within the economy for the planned period, i.e. the monetary accumulation (net and gross, with due account of amortisation funds), and of their distribution among individual spheres and sectors of the economy. The goal-oriented influences of planning on the development of basic macro-economic proportions and the sectoral, technological and territorial structure of production become evident precisely at this point. The overall effectiveness of the planning of socio-economic development largely depends on the extent to which the government is able to influence the actual distribution of capital investments through a mobilisation of financial resources and their subsequent redistribution, or else through the use of various administrative and economic measures.

It is only at the next stage that the final results of particular distributions of capital investments become apparent, when the unity of the physical and value forms of the movement of basic and circulating assets is reflected in planning, i.e. when as a result of the plan's realisation capital investments find their embodiment in the form of machines, equipment, buildings, facilities and stocks of raw materials. It is only at this stage of planning activities that it is finally established to what extent the physical requirements of replacement and of an expansion of productive and non-productive assets (the first point of departure in planning capital investments) correspond to the volume of financial resources assigned to capital investments and

to their distribution (the second point of departure in planning capital investments). It follows that the planning of capital investments should not be simply reduced to financial planning, as is the practice in most developing countries. It must be combined with physical planning, with the planning of capital construction activities, the installation of productive equipment, and the operation of new productive and other facilities envisaged by the plan (i.e. with the planning of the implementation of planned projects).

Prices serve to mediate the unity of physical and value forms of movements of assets under conditions of commodity-money relations. This refers to prices for the material carriers of basic and circulating assets (basic and circulating capital), namely prices for machines, equipment, and the value of construction activities, raw materials and labour power needed for expanding production. Accordingly, they too must be objects of planning and regulation in the process of realising capital investments plans and plans of capital construction activities.

The effectiveness of investments of financial, material, and labour resources into objects of capital construction activities, and of the supplying of national economies with equipment is determined by their contribution to the production of the gross social product and income, and ultimately by their participation in the further process of accumulation. This leads to a number of conclusions concerning practical approaches to the planning of capital investments.

In developing countries the planning of capital investments represents the main lever for regulating economic growth. The latter results from an expansion of productive assets in all economic sectors and from the introduction of progressive changes into the economy's structure. Yet the possibilities for planning capital investments in developing countries are limited. Processes that are directly planned may include government capital investments, although the planning of the government's financial resources and of enterprises within the government sector that are utilised for capital investments (particularly in mobilising credit resources) is largely of a forecasting nature. Forecasting methods are even more important in planning the material supplies that capital construction activities require, and in planning the value of individual elements of expenditures.

Up to a point it is also possible to speak of the planning of capital investments in the co-operative sector of the economies of developing countries.

As for private capital investments, just as all other aspects of private economic activities, they only lend themselves to indirect planning, i.e. to forecasting and regulation. This is generally also true of trends relating to the aggregate volume of capital investments, their sectoral and territorial structure, and the sources of their financing.

Given these observations it is possible to distinguish the following four sections within national plans of capital investments:

- 1) programmes of government investments;
- 2) a system of forecasts (goal-oriented and ordinary) of private capital investments;
- 3) a system of forecasts of the general dynamics in the area under consideration; and
- 4) programmes of government activities (control and regulation activities and forms of encouragement) for creating conditions that are needed to implement goal-oriented forecasts relating to capital investments. The proportion of national income assigned to accumulation as opposed to consumption is a central aspect of the government's development strategy. Its significance is not only economic but socio-political. In particular, increases in the rate of accumulation must not produce a significant deterioration in living conditions at the country's given stage of development (cf. 2.2.2). An important aspect of government strategy relating to capital investment concerns its distribution among the productive and non-productive spheres. This largely determines the rates of growth in output and in labour productivity and hence in consumption as well.

Capital investments for the national economy as a whole are determined after establishing the current difference between the requirements for all types of goods and services, on the one hand, and available resources (with due account of exports and imports), on the other. This represents the basic relevant indicator. Subsequently in establishing specific requirements for new capital investments the following factors are considered: possibilities for a fuller utilisation of available capacities; the scope and composition of uncompleted construction activities; the age and technical composition of basic assets (their wear and tear and obso-

lescence); and requirements for auxiliary capital investments needed to make new projects operational.

The resulting estimates of required new capital investments usually exceed the country's ability to undertake them and this raises the need to establish priorities, i.e. to identify the sectors and spheres to which capital investments should be assigned first.

The proportion in which capital investments will be divided among the productive and non-productive spheres of the national economy must be decided first. No single rule can exist for establishing this proportion (cf. 2.2.2). Since only productive capital investments influence the national income growth directly, the former are usually given priority in most developing countries. But it would be a mistake to view capital investments into the non-productive sphere as a net loss in terms of their output, for a certain level of its development, for example, in science, education, health services, finance and commerce, is a prerequisite for the growth of material production as well. As the latter increases, so does the importance of the current state and composition of the non-productive sphere. A complex approach is therefore appropriate with regard to these proportions rather than a simple juxtaposition of one part of the national economy to the other. Such an approach is one of the requirements for increasing the social effectiveness of capital investments.

The next stage concerns the distribution of overall planned capital investments within the productive and non-productive spheres. The resulting sectoral structure of capital investments reflects the influence of many factors that planning activities must take into account. They include the achieved level and type of emphasis given to economic and social development; the availability of natural resources and of manpower resources; the level of employment; the absorption capacity of internal markets; and possibilities for a fuller reliance on an international division of labour. In the case of the non-productive sphere, a number of social aspects of its development are of great importance, including the need to overcome large differences in existing levels of the standards of living of different strata of the population.

An important aspect of the allocation of capital investments within the sphere of material production concerns the share that is assigned to the First Division (to production of

means of production) as opposed to the Second Division (the production of means of consumption); the relative shares allocated to industry and agriculture; to industry and agriculture on the one hand, and to economic infrastructures, on the other; to extracting and processing sectors of industry; to capital-intensive and labour-intensive types of production; and finally to import-replacing and export-oriented types of production.

The planning of the sectoral structure of capital investments determines the manner in which the future composition of output will develop, and represents one of the most important means for carrying out selected strategies of economic and social development. It is closely linked to the preparation of other sections of national economic plans, and especially to the planning of rates of economic development and of the general composition of output. It is also closely linked to the planned implementation of particular strategies for developing agriculture, industry and other economic sectors (cf. 3.1.2; 3.1.3; 3.2).

An important aspect of planning capital investments concerns their territorial distribution (cf. Section 4). The reduction of differences in levels of socio-economic development of individual regions by encouraging the more rapid development of lagging regions is one of the more general principles of planning and regulating the territorial distribution of capital investments in developing countries. This is also related to the problem of utilising more fully the country's natural resources potential, and in particular to the need to develop mineral extraction activities. In working new deposits, however, and in expanding the development of existing ones, it is important to keep in mind the long-term requirements of development as well.

In the case of most industrial sectors the territorial distribution of capital investments is determined by technological considerations. Some sectors require locations close to sources of raw materials, while others should be near markets, still others to sources of energy or else of skilled labour. Finally, capital investments in infrastructures (economic, social and administrative) are associated with corresponding investments in the sphere of material production.

Even the most general forecasting estimates of capital investments over a planned period require adjustments in the light of the extent to which the postulated economic and

social conditions are in fact present. Above all this refers to the availability of financial resources, construction materials, machines and equipment, of the corresponding labour force, and of the required project documentation and construction facilities. The material requirements of planned capital investments, moreover, must refer to specific regions and specific times.

3.5.1. Government Capital Investments

Government capital investments refer to those capital investments whose aim is to create new or else expanded or renew basic and circulating assets of either the productive or non-productive type that may be partly or wholly owned by the government (through either its central or else its local bodies). In short, this refers to all enterprises, services, and firms, constituting the government sector of the country's economy (including mixed enterprises). Financial sources of state capital investments may include the resources of the government budget, which originate in fiscal and other contributions acquired by central and local government bodies; internal means (profits, reserve and depreciation funds) of state enterprises and mixed enterprises (services, firms, etc.); subsidies, loans, credits, received abroad either by the government itself or by enterprises within the government sector; and loans obtained by the government on internal capital markets for enterprises within a government sector. The direct investors in government capital investments are usually enterprises and services of the government sector (including enterprises belonging to municipal, communal and other local bodies), and also mixed enterprises.

While government capital investments are viewed as an object of direct planning, the extent to which such investment activities actually do lend themselves to government regulation largely depends on the extent to which enterprises within the government sector are in fact independent of the government in their decisions.

The general plan for government capital investments may include a number of programmes. Among them the greater part will contain programmes of ministries and agencies of the central government, then programmes of economic organisations that are centrally managed, and finally programmes of local government bodies. All such programmes are closely

linked with each other both in terms of their financing and in terms of the manner in which their planning and operational activities are co-ordinated.

A "project-oriented" approach is generally employed in planning government capital investments. The point of departure for each capital investment programme is then a list of specific investment projects that are needed to carry out the general strategy or else a sectoral strategy for development and to solve specific problems in developing production activities as well as in the social sphere. Such a method for planning capital investment possesses a number of advantages. In particular:

- 1) it makes it possible to justify the appropriateness of capital expenditure more fully from a technical, economic, social and other points of view, and to establish the economic effectiveness of capital investments in the productive sphere;

- 2) it makes it possible to identify the relative priority of individual investment projects by providing a basis for comparisons;

- 3) it makes it easier to know whether a correspondence does exist between available financial resources and the technical, material, and organisational requirements of capital investments, both at the project development stage and at the operational stage;

- 4) it makes it possible to co-ordinate the requirements of enterprises for basic and circulating assets in order to provide a normal basis for their subsequent operation;

- 5) it lends specific spatial dimensions to capital investment plans, in the sense that it makes it possible to combine sectoral and territorial distribution of investments and to "tie" each investment project to a specific schedule within a planned period;

- 6) it makes it possible to organise more effectively monitoring activities relating to the implementation of capital investment plans not only in terms of their "financial" plans (through control over the expenditures of financial resources), but also of their "physical" plans (control over the course of capital construction activities and over the equipment of particular sectors of the economy and enterprises).

"Project-oriented" elaborations of capital investment programmes also make possible the use of a simple approach

to the aggregation of such programmes within the state's overall capital investment plan and for establishing both their internal consistency and their consistency with other sections of the overall national plan.

So-called capital investments of the "portfolio" type are a separate form of government capital investments. This refers to the acquisition of a part or else the entire capital of privately-owned enterprises. Such government capital investments, too, must be planned in an appropriate way. A specific feature of portfolio investment projects is that while they require an expenditure of financial resources (and normally, in the case of shares of foreign companies, of foreign exchange) this need not be matched by some physical equivalent.

The experience of developing countries in planning government capital investments points to the need to examine a number of widely-used practices in this area and to evaluate them from a methodological point of view. In a number of countries government capital investment plans are constructed in such a way that a part of these investments is not matched by other financial or material resources. It is expected that this itself will contribute to a mobilisation of resources in the course of plan implementation.

From a methodological point of view internal inconsistencies within any section of a national economic plan are impermissible. In practice such an approach to planning state capital investments often leads to failure because some of the resources needed to carry out major projects are missing. The negative consequences of such unbalanced plans of government capital investments may be largely overcome by identifying top priority projects that must be carried out under all circumstances. After assigning to them all necessary resources, the remaining projects are then included in an additional programme whose implementation will depend on whether the required resources for capital investments will in fact become available in the course of plan implementation.

One of the frequent reasons for failing to carry out state capital investment plans in developing countries, and particularly of plans relating to the construction or else modernisation of large industrial enterprises and infrastructure elements, is the absence of project documentation. Project documentation must be available before investment projects

are initiated. If one considers the time required for construction in the case of most modern projects, this means that the major part of the technical documentation for projects to be included in a medium-term (4-5 year) plan must be available at the time of its initiation.

In the planning practice of most developing countries one finds sharp discrepancies between the implementation of financial indicators of capital investment plans and the implementation of corresponding physical indicators. Frequently, even though government capital investment plans may be overfulfilled in value terms, the corresponding investment projects are not completed. This is explained partly by the use of planned estimates of expenditures that are too low (sometimes deliberately so for the project to be accepted), and partly by a failure to follow methodological requirements in the course of planning. In particular, this refers to the underestimation of the role of "physical" indicators in the planning of government capital investments, especially in the case of capital construction activities and of other investment projects (including schedules for their completion and for their initial operation) and to an underestimation of the influence of price changes on the implementation of the "physical" aspects of capital investment plans. This second factor is especially important in view of the current intensification of inflationary processes. For unless adjustments are then made in terms of forecasts of increasing prices, state capital investment plans become largely meaningless.

Finally, it is important to consider the effectiveness of state capital investments. In most developing countries it is constraints on possibilities for the accumulation and the limited amounts of financial and material resources that are available for expanding productive assets that hamper economic development and the solution of problems concerned with the overcoming of economic backwardness. An important part of such resources must often be diverted to such socially urgent projects as the creation of material infrastructures for expanding health services and education.

The manner in which resources assigned to capital investments are allocated and the effectiveness of the available and also newly created productive assets within a country affect the rate of economic growth, and the population's level of welfare, as well as possibilities for its further improve-

ment. Let us therefore consider some of the most general requirements relating to the planning of capital investments that follow from the need to increase the effectiveness of productive assets.

In elaborating a plan it is necessary to seek the best possible proportions between those capital investments that require a relatively short period of time and therefore produce the corresponding social effect relatively quickly, and capital investments that require a long period of gestation. In particular, it is important to avoid the simultaneous initiation of construction activities for many capital investment projects, since this leads to a dissipation of resources and to increases in uncompleted construction activities.

A complex approach to the planning of capital investments is needed that will provide for a proper scheduling of the conditions that the normal functioning of each object of capital investment requires, such as the initiation of operations on complementary capacities (the completion of so-called joint investments), and the supply of the energy, water, spare parts, and labour services that are needed for the subsequent operation of the new enterprises.

There is a tendency in many developing countries to rely on new capital construction activities in meeting all problems of development within the state sector, and a neglect of possibilities of the use of existing productive capacities. But as the size of the state sector increases replacement expenditures needed to maintain the basic assets of existing enterprises become increasingly important. The effectiveness of government enterprises depends substantially on a correct planning of these expenditures and of the corresponding depreciation funds. This requires that depreciation schedules and norms be regulated by legislation.

Programmes designed to regulate private capital investments form a major element in implementing government strategies relating to capital investments. While their nature and emphasis may differ, they are generally determined by the socio-political orientation of a country's development. The corresponding measures should seek to encourage private capital investments in those sectors, spheres and regions where they are deemed to be important, and to discourage them or else completely prohibit them where in the light of overall plan indicators they are undesirable.

Both economic and administrative measures may be em-

ployed for such a purpose. The former include the granting of credits on favourable terms, the use of discriminatory taxes and the creation of differentiated terms for acquiring means of production on external or internal markets. Administrative measures may include the use of the licensing of construction activities, the rationing of foreign currencies required for imports, direct control over distribution or reallocation of major means of production, and control over the activities of capital markets.

The more systems of government control and regulation of private capital investments are comprehensive, the greater will be the likelihood that they will be carried out in the desired way.

Credit and banking institutions provide ample opportunities to control and regulate both private and government investment activities.

The corresponding methods of control will be fully effective, however, and will serve the specific tasks of a given development plan only when the entire banking system is included in the state sector and is controlled and regulated by the central bank in accordance with the requirements of state planning. In order that these conditions be met it is also necessary that temporarily available financial resources, and particularly the investment funds of both government and private enterprises, be concentrated in state credit and banking institutions and that the latter account for the greater part of a country's payments operations.

It is important that financial control and the regulation of capital investment be co-ordinated with the corresponding administrative activities. In the case of state capital investments administrative control and regulation is entrusted to ministries, agencies and local organs of power that are responsible for the corresponding enterprises. It is they that must control the actual course of implementation of particular investment projects and the schedules for initiating the operations of new enterprises envisaged by the plan. In the case of private investments similar forms of control may be provided by licensing systems which may provide a basis for bank activities concerned with the financing of private investment projects.

Effective control over the process of plan implementation and over capital investment programmes is a prerequisite of effective national planning.

3.6. THE TRAINING OF PERSONNEL AND EMPLOYMENT

A country's development depends very largely on the way in which the population's productive abilities are formed and on the way in which human labour activities employ its natural wealth and means of production. The size and quality of the labour force also influences the way in which the use of means of production is improved. Labour power is that active part of the productive forces of a society that ensures social progress.

In all developing countries one finds both an acute shortage of educated and especially highly skilled labour, and a surplus of able-bodied persons without any specialised training, and therefore unable to find work even when a need for labour exists. That disproportion contributes to an intensification of unemployment, whose principal cause is a lack of correspondence between the size of the able-bodied population and the number of available jobs, as well as by the generally modest possibilities of underdeveloped economies to absorb labour. A shortage of trained persons is one of the main obstacles inhibiting socio-economic progress, while growing unemployment has become one of the most serious social and economic problems; at the same time unemployment reduces the rate of economic growth. Both problems are thus closely linked with each other. Since a large part of the able-bodied population, particularly in cities, cannot find work, because they do not possess many skills, mass programmes for the development of standard skills provide an important means for overcoming unemployment as well as for providing labour power. The planning of personnel-training activities is closely linked to the planning of economic growth even though solutions to each of these two problems are important in their own right.

3.6.1. The Training of Skilled Personnel

Both primary and secondary general education constitutes the initial stage in training labour resources. The level of quality of that education largely determines the subsequent forms and methods of specialised education. The latter trains labour in the light of the national economy's needs

at a given stage of its development. (The planning of education is examined in 3.4.2).

Two basic types of education may be distinguished. The principal objective of the first is to train specialists possessing theoretical and practical knowledge in their fields, as well as professional know-how. The second type of special education provides professional training through knowledge acquired from experience. This is usually acquired in vocational schools and may be combined with both general education and the acquisition of a certain minimum of theoretical knowledge (in professional schools and centers of technical and professional training). Alternatively such training may be acquired directly at places of work through a sharing of the experience and professional habits of experienced specialists.

The planning of activities in training personnel is based on forecasts of the corresponding requirements in all sectors of the economy and of the social sphere, as well as of management, for different types of specialists, with due consideration of the required training time. Such requirements forecasts possess three components:

- 1) the extent to which the country's needs for specialists are already met in the pre-planned period;
- 2) the additional requirements of all sectors that follow from their planned growth;
- 3) the replacement of expected withdrawal of working specialists during the planned period (through death, retirements, immigration, and the replacement of foreign specialists by native personnel).

The requirements of the educational system itself for specialists to train personnel must be considered first within a programme for its own development. In all these calculations it is important to distinguish requirements for types of labour that are already being trained within the given country or abroad and requirements for new types of specialists.

Neither the theory relating to such calculations nor the corresponding practice in developing countries are well developed. Often they are based on simple extrapolations of the changes in the composition of the labour force during the preceding period. This method is inadequate because it can only be applied to short-term forecasts, and also because it automatically carries forward autonomous tendencies that

developed in the past. Similar objections may be raised with regard to the method of sample surveys and of census taking.

A number of studies have been published concerning the dependence of economic growth on the professional training of labour resources. Attempts continue to be made to develop models seeking to identify general laws that relate the development of needs for labour possessing secondary and higher education to the growth of gross product. The relevant calculations are based on statistical relations (coefficients) between expenditures of different types of skilled labour and output. Experience has shown, however, that such aggregated models produce an excessive simplification of actual relations between the volume of output and corresponding requirements for labour. In particular, they do not reflect the rapid shifts in economic structure that occur in developing countries.

A step-to-step approach to the calculation of needs for personnel is more appropriate. A point of departure is then provided by indicators of increases in the gross products of individual sectors (agriculture, individual industrial sectors, transportation, communications). When corrected for changes in the productivity of labour, these determine the sectoral requirements for labour. Next, such requirements are made more specific for each sector by including needs for specific types of professions and skills.

Such an approach produces difficulties in determining the professional composition of the personnel needed in individual sectors in cases in which one wishes to consider the specific features of individual enterprises within each sector relating to their equipment and output. Even when they are homogeneous in terms of their products large enterprises usually rely on different equipment and levels of mechanisation of labour and different technologies and thus require different proportions of labour possessing different levels of skill.*

* Systems for classifying trained personnel may be based on two attributes: first, their professional composition, and second, their level of training. The classification developed, by the International Labour Organisation belongs to the first group. It encompasses more than 1,000 professions aggregated into 10 major groups, which are then further subdivided into 75 subgroups and 200 minor groups. Classifications of the second type reflect the training requirements

Generalised surveys of individual sectors do not take such distinctions into account. Accordingly, they subsequently require a further elaboration.

This may be achieved through a "project-oriented" method for identifying labour resource requirements. This refers to calculations that are made for each individual project of the number of workers of individual professions and skills required for its construction as well as its subsequent operation. The shortcomings of that method derive from its dependence on the corresponding technical documentation at a time when projects may not yet be selected and from the likelihood that the required long periods of training (for highly skilled personnel) will exceed the time envisaged for the project itself.

Because of the long duration of that process, the planning of training activities is especially difficult in the case of highly qualified specialists. Forecasts of the required number of such specialists must be long-term forecasts and appear as component elements of long-term forecasts of overall socio-economic development. Personnel of this type intended for the next medium-term plan must largely be trained already in the present planned period. The next step in planning the training of personnel (after identifying the corresponding needs) is the specification of practical training activities.

As in any other area such plans must match available materials and organisational and other possibilities with the forecasted requirements for personnel.

Clearly there cannot be a common procedure for taking all decisions in this area. Much depends on specific cases, and on such factors as the nature and level of skills of personnel, the needs for such personnel in the long run and in the immediate future, the nature of the required material infrastructure, the volume of capital expenditures for creating it, the magnitude of current expenditures, the magnitude of operational expenditures on training personnel, and possibilities for training native personnel in other countries.

It is only possible to note certain general considerations bearing on the planning of such measures. It is generally

of individual groups and types of specialisation. Both classifications may thus play an important role in planning.

preferable to develop a domestic infrastructure for training native personnel within the country itself. In view of the limited volume of resources that may generally be assigned for this purpose it is best to employ them first in supplying professions for which large numbers of persons are needed (with due regard for the specific characteristics of the country in question and of the relevant emphasis on individual sectors within its economy). For otherwise the training of personnel will entail high expenditures, particularly when this relates to secondary and higher forms of education which are expensive. Thus it is sensible, for example, to organise in practically all developing countries centres for the training of teachers, doctors and other medical personnel, agricultural specialists, engineers, and skilled construction workers, and to create centres for the professional training of members of those professions for which there is a great demand. It will not, however, be justified to establish special divisions and faculties for training chemical engineers in cases in which the need for members of such profession over the next several years will be only 10 to 15 persons. Instead it will be more appropriate to train such specialists in other countries. Professional training is generally more rapid and less expensive when it is acquired through experience at one's place of work. On the other hand, personnel who have been trained in this manner are not always equipped to meet the needs of modern production, particularly if they have not first received a minimal general education, as is true of many developing countries. A more expensive but more effective way of preparing professional workers is to establish vocational schools, and training centres in which persons acquire some theoretical knowledge as well as professional skills, and possibly general education as well. This type of education greatly facilitates the subsequent acquisition of additional professions.

Experience indicates that the creation of such centres of professional training within large enterprises of the corresponding types is a particularly effective method. Private firms, too, may be employed for such a purpose.

In short, one of the major criteria for arriving at decisions concerning appropriate ways and methods for training personnel is a comparison of required expenditures and efforts with the economy's needs for specific numbers of labour resources possessing given characteristics. All condi-

tions and prerequisites required for such training activities should then be taken into account.

3.6.2. The Employment of Able-Bodied Labour

In most developing countries unemployment and partial unemployment represent a social and economic problem that is particularly urgent. It is produced by the specific characteristics of transition periods in the development of these countries and by the heritage of their colonial past as well as by their social and economic backwardness.

The unemployment and partial unemployment of able-bodied labour encompasses not only the insufficient utilisation of labour power, which is the basic factor of production with all the ensuing economic consequences. For in their social aspect they lead to a degradation of the human personality, to a growth in the number of the lumpen proletariat, i.e. the most dispossessed and hence, generally unstable part of the population.

The great importance of finding ways to increase employment is evident as are the difficulties in doing this. In view of the diversity of causes for unemployment, solutions to the problem require fundamental changes in the newly independent countries in the very nature of development. Government measures for increasing employment must therefore be of a long-term nature and must rely on a complex approach in the sense that they must be directed at simultaneously overcoming all the social and economic factors that contribute to unemployment.

The planning methods that are appropriate in this sphere will reflect the characteristics of the strategy that is selected. Such planning must be of a long-term nature, must relate to all appropriate sections of the overall national development plan, and must consist of a number of subprogrammes entering into the sectoral programmes of national development plans.

The urgency and complexity of the problem of unemployment exert a direct influence on the selection of the objectives and tasks to which the government's planning of socio-economic development relates. A reduction in unemployment must play one of the major roles in such matters. All sectors of the economy contribute to overcoming unemployment but this is especially true of sectors concerned with

material production, including agriculture, since only then can there be a solution to such important economic problems as increasing the share of national income assigned to consumption and to greater accumulation.

A complex approach to problems of development and employment must also influence the sectoral structure of economies and the selection of equipment and technologies within individual sectors. It must be kept in mind that a simple borrowing of equipment and technologies designed for use in industrial countries cannot be expected to meet automatically the needs of such an approach.

While specific ways of an integrated solution of problems of economic growth and employment will vary from country to country they generally reduce to four basic activities:

- 1) the development of modern economic sectors and spheres of social life, especially in material production;

- 2) the development of types of output and productive methods that do not reduce relative and absolute increases in employment;

- 3) the introduction of measures that adapt unemployed and also new members of the labour force to modern production conditions;

- 4) the implementation of socio-economic transformations that contribute to increasing employment.

Experience has shown that in developing countries the participation of able-bodied labour in modern forms of production does not occur automatically. For many reasons both yesterday's peasants and a significant part of the permanent urban population are not ready for modern production activities. This is explained by a number of economic, social and even psychological factors. Accordingly, an adaptation of the labour force to new conditions of labour requires special measures. An important element is provided by general education and by professional training, but this is not sufficient and governments must play a decisive role.

Traditional agrarian relations that continue to exist in many developing countries and in which a very large part of the population is usually engaged inhibit shifts to an effective utilisation of land and other natural resources that would increase employment and produce a growth in agricultural production. They inhibit changes in social consciousness, which hinders the process of involving many

people into modern production activities and their adopting of new labour practices.

The most comprehensive form of planning employment activities concerns the preparation of labour power balances. This refers to both current balances relating to the base (pre-plan) period and planned balances, which relate to the given planned period.

Data concerning the availability of labour and its dynamics over the planned period is then presented as "Resources", while both current and planned data concerning the employment of able-bodied labour are described as "Utilisation". Such balances usually reflect the age and sex structure of the able-bodied labour, as well as its regional, sectoral and professional composition.

Balances of this type may be constructed in terms of different indicators. They may refer to the number of workers or else to labour resources and to expenditures of labour (in man-days or man-hours). The degree of utilisation of labour power can then be represented more fully.

Initial data for calculating base-year balances for labour resources are provided by population censuses, sample surveys, and data based on national and sectoral statistics on employment and on the training of personnel. The planned balances are constructed on the basis of demographic forecasts of the dynamics of able-bodied population and of planned and forecasted data concerning expected changes in employment by sectors, regions, and individual categories of personnel.

In the case of developing countries the planning of labour resources and of employment is almost entirely of a forecasting nature. Exceptions exist only in the planning of employment in enterprises in the state sector and in the state administration. More specifically this refers to cases in which detailed provisions are made for implementing state investment plans calling for the operation of new or else modernised state enterprises.

For these reasons and also because of the paucity of initial statistical data concerning the labour force and its utilisation, base-year balances and especially planned and forecasted balances of labour resources in developing countries may be aggregated. Still their utilisation in devising national economic development plans is fully justified and necessary. Even in the absence of reliable data on the

employment of able-bodied labour in the base period (but given demographic statistics and forecasts of able-bodied population growth for the planned period) such balances may still contribute to the identification of general trends in the dynamics of employment.

Forecasted data concerning expected increases in able-bodied labour over the planned period may then be compared with planned and forecasted changes in employment. The methods that are employed in preparing such demographic forecasts are relatively well known and need not be considered. As for the comparisons, they may be based on the following calculations.

Increases in employment in enterprises of the state sector (in both the productive and non-productive spheres) are determined from data concerning the industrial projects to be implemented. Two ways exist for calculating the corresponding increments in employment. They may be based on project data, on technical documentation and techno-economic considerations encompassing both construction and operation activities; or else on aggregated indicators, that is, on information concerning employment in other similar enterprises and installations within the given country or else abroad (on indicators of average capital investments per place of work and other criteria).

Similar calculations of increments in employment may be carried out in relation to the major investment projects within the private sector.

The number of young people of working age that will be attending schools is established from programmes for the training and education of personnel.

Separate consideration is given to data concerning the utilisation of able-bodied labour in different types of social tasks in connection with special programmes for overcoming unemployment and with military service. Data concerning budget expenditures on government administration and an analysis of corresponding trends make it possible to estimate changes in the number of persons employed in government services. But it is especially difficult to determine changes in employment in agriculture and in small-scale urban commodity production, in private trade and in the sphere of services. There all calculations may be based on forecasts and expert estimates

that reflect primarily an analysis of the effectiveness of the measures that are envisaged for developing these economic sectors (particularly in agriculture), that is, on the expected influence of the government's economic policies in relation to small-scale commodity producers, and the sphere of services and trade, as well as on past trends.

Despite the difficulties that attach to such planning and forecasting calculations of employment, and despite their approximate nature, they play a vital role within the larger complex of studies on which the planning of socio-economic development depends.

4. TERRITORIAL PLANNING

4.1. THE PLACE OF TERRITORIAL PLANNING WITHIN THE OVERALL SYSTEM OF MACRO-ECONOMIC REGULATION

In a wide sense of that term territorial planning is concerned with the spatial aspects of the distribution of activities that serve the reproduction process. It is therefore one of the leading subdivisions of national planning. Both national plans and any of their sections (programmes) must be "tied" to a specific point on the country's territory before it can be carried out. A country's socio-economic development results from separate processes of development occurring in individual regions, and this must be adequately reflected in overall national plans. The functional (goal-oriented) autonomy of regional planning in developing countries is often amplified by the existence of rather significant differences in the level and major trends of the socio-economic development of each region.

From a purely practical point of view, the organisational specificity of regional planning also reflects the territorial structure of organs of state power and the role of local authorities as autonomous agents of state regulation.

The relative importance of territorial planning does not depend on a country's size. For while the scale of corresponding planning activities may differ, so will the volume of overall state planning, which is determined by the size and structure of the national economy.

The methodology and contents of territorial planning reflect two basic factors, namely, the reproduction territorial structure and the specific features of its socio-economic organisation. A major role is played by the given society's

socio-economic structure, and by the concrete manifestations of its specific traits in individual regions. These are the factors that determine the possibilities, scope, and limits of territorial planning, as well as the functions of central and local government bodies in preparing and implementing plans.

A number of factors influence a country's territorial division of labour which determines the spatial structure of its reproduction process. They include the country's natural and climatic conditions, the level of development of its productive forces, and the nature of its socio-economic system. The natural and climatic conditions, or, more precisely, their differentiation in relation to individual regions constitute the basic natural foundation for a territorial division of labour and the location of productive forces, particularly in agriculture and in extractive industries. The influence of regional differences in natural and climatic conditions on the establishment and development of spatial structures is particularly strong in cases in which the level of economic development is low. As productive forces develop various factors (economic, social and political) begin to exert an increasing influence on the development of the territorial structure of the economy. In particular, the level of development of productive forces plays a leading role. The specific traits of the given socio-economic system determine the level of output, the rate of growth and also to a substantial extent the territorial location of production activities. It is in this sense that their role is decisive.

The territorial structure of national economies in developing countries possesses a number of specific features. Above all this refers to wide differences in the level of economic development of different regions. More generally, a major part of their economic potential is concentrated in a small number of regions.

In particular, these disproportions result in an uneven spatial distribution of the population.

The relatively more developed and populated regions include coastal areas possessing well-established links with the outside. Internal regions usually lag in their development. A major part of the economic potential of such countries is concentrated in regions specialising in the exportation of agricultural products and especially in the

large-scale extraction of resources in short supply, as well as in major cities. Many large cities are surrounded by wide regions possessing low levels of economic and social development, while many lagging regions do not possess the basic elements of modern economic and social infrastructures, such as roads, electricity, water supply, airports, and networks of health and sanitation institutions and of educational establishments. This produces a low standard of living and of culture for their population.

Economically more developed regions are also more developed in a social sense. They operate as centres of dissemination of so-called modern formations, such as private capitalism and state capitalism, while "traditional" formations (patriarchal-communal, feudal, small-scale production) prevail in other areas. Extremely backward manual tools and primitive technology are employed in such formations and semi-natural forms of production are emphasised.

Most of the more developed districts, and particularly those that are export-oriented, constitute enclaves in relation to the remaining parts of the country in the sense that their linkages with these parts are weak. Regions specialising in export-oriented production are linked primarily to the external world. Their output is exported abroad, while a major part of their productive expenditures (including financial capital, equipment, and even skilled labour) is provided through imports. This is particularly evident in the case of those economic complexes whose operation is controlled by foreign monopolies exploiting their natural resources. In addition, ethnic, religious and other distinctions also exist. Together these constitute manifestations of the general unevenness of regional development. Thus, from a political, social and economic point of view the majority of developing countries and especially the least developed ones, are conglomerates of regions experiencing different and often opposite trends of development. Such situations have developed as a result of colonisation, and especially through the influence of the economic interests of developed capitalist countries. These determined the areas of specialisation of individual territories already during their colonial period. It should be noted that this feature of the spatial structure of the economies of developing countries continues to be strengthened by the laws

that govern the reproduction of the world capitalist economy, even though the geographic and economic conditions of many regions make possible their many-sided development.

These features of the territorial location of elements of reproduction in newly independent countries produce a number of urgent social and economic problems. Above all this concerns the territorial differences that exist in the distribution of the incomes generated by economic activities. They result in sharp differences in the standards of living of the populations of relatively more developed and relatively more backward regions and, hence, in a migration of able-bodied labour, and especially of young people, from the more backward regions to the more developed ones. In many cases this represents a mass escape of the population from the agrarian periphery to developing economic centres, as well as an autonomous and still uncontrollable process of urbanisation. That process has become more intense in recent years. It has led to a rapid overpopulation of cities, to a worsening of urban living conditions and to a sharp rise in the number of persons who are either fully or else partly unemployed.

A major problem for most developing countries is produced by the socio-political contradictions among the populations of individual regions that result from socio-economic differences among them and also from ethnic differences. Such interregional contradictions often aggravate existing political conflicts.

The autonomous and uncontrollable development of former colonies and dependent countries thus leads to an aggravation of many of the problems and contradictions that were inherited from the colonial period, as well as to the appearance of new ones that are equally urgent and serious. The negative consequences of such patterns of territorial location of economies and of productive forces cannot be overcome through autonomously regulated forms of development. Clearly formulated strategies are needed as well as a systematic interference by the government into the processes that determine the territorial structure of reproduction.

4.2. THE MAJOR CHARACTERISTICS OF STRATEGIES OF TERRITORIAL DEVELOPMENT

The general objectives of strategies of territorial development concern the overcoming of sharp differences in levels of development of individual regions through the creation of more rational structures of division of labour and of types of specialisation that serve best the tasks of overall national development. This refers to a general development of productive forces and to the participation of the most backward regions and territories in that process. A major means for achieving such a gradual overcoming of differences is a diversification of the economies of the most backward regions.

The overcoming of differences in levels of social development requires that the scope of "traditional" formations hampering economic growth be gradually reduced. By overcoming social backwardness within each individual district they will overcome it on a national scale.

Such an acceleration of the development of the most backward regions implies a certain reduction of rates of development of "leading" territories and economic centres.

Strategies of regional development also seek to encourage the development of economic linkages among different regions in order to overcome enclaves and to produce a socio-economic integration of the entire economy. A basis for such policies is provided by the development of national economies and of integrated national markets.

A long-term objective of national development is to reform autonomously developing economic structures in various regions. This usually requires both a gradual transformation of the one-sided structures of production in already formed regions (for example through encouraging the local processing of export-oriented minerals and agricultural raw materials) and the development of lagging territories, as well as their specialisation in outputs that are adapted to local natural and climatic as well as economic and social conditions. These two processes are interdependent and jointly create conditions that are favourable to general economic and social progress.

Just as any other strategy, national strategies of territorial development must be elaborated to the point at which specific objectives, measures, and methods of state econo-

mic policy are defined. In particular, this applies to investment activities directed at expanding the state sector. This relates to a recognition of the role of the territorial factor in the development of the economic and social infrastructures that represent the most general basis of socioeconomic development itself. The construction of new state enterprises, too, must reflect the principles embodied in strategies of territorial development.

Government policies concerned with regional development are directly influenced by a diversity of social reforms and a reorganisation of production relations that inhibit economic development. In particular, this refers to agrarian reforms, the development of co-operatives and of state credit systems, as well as of nation-wide state services in providing supplies and marketing agricultural output that recognise the specific characteristics of individual regions.

An important part of policies of territorial development concerns the government control and regulation of private economic activities. This may include its partial social transformation through the establishment of co-operatives of small-scale producers and the reorganisation of large private enterprises into mixed state-private enterprises. One of the means for meeting problems of territorial development is the creation of conditions that are favourable to private capital investments in lagging regions and unfavourable to similar investments in the more developed ones.

4.3. METHODOLOGICAL ASPECTS OF TERRITORIAL PLANNING

One of the most important methodological problems that bears on the formulation of strategies of economic development and on corresponding planning activities concerns the relative weight that is given to national and to regional aspects of development. This is particularly important in the case of developing countries. Should one give preference to overcoming differences in levels of development of individual regions and emphasise a decentralisation of productive forces, or should one select location patterns that provide for a maximal growth in a national economy as a whole? A comprehensive theoretical perspective on this problem indicates that the national and regional aspects of develop-

ment should not be separated and that the overall national level of development of productive forces is in fact determined by the level of their development in all the country's regions. Social, political, and other "non-economic" considerations, as well as economic considerations, indicate that a comprehensive development of all spatial components of a national economy offers the most desirable approach.

While there is thus a unity between the national and regional aspects of development, there always exist contradictions among them as well that derive from the non-coincidence of purely economic requirements in relation to the location of productive forces, and social, political and strategic requirements. In particular, criteria of economic desirability alone would suggest that the location of productive forces should gravitate to those regions and centres in which all conditions and resources relating to production are best combined. This refers to natural resources (such as the availability of energy, raw materials and climatic and soil conditions), economic resources (such as the availability of productive infrastructures, construction facilities and of related sectors and market factors), and to social considerations (such as the availability of labour resources and of social infrastructures).

Because of the influence of economic considerations production activities are largely located in regions where the level of development of productive forces is relatively high. This is especially true in the case of processing industries, and less so in the case of extractive industries and agriculture. Economic conditions generally encourage a concentration of productive forces and the development of economic centres, as well as a more rapid development of already developed regions rather than of lagging ones. In practice, however, because of social, political and other "non-economic" considerations, it is usually necessary to develop productive forces in most backward regions of newly independent countries, where productive forces are less developed and the standard of living and effective demand of the population is lowest. The development of such regions usually calls for large expenditures, since normally the required economic and social infrastructures are initially absent, while natural-climatic conditions are often less favourable. Modern science has not yet defined sufficiently well-established principles and methods for comparing the economic and socio-po-

litical factors in selecting the location of productive forces, and in practice these decisions are largely subjective in nature (cf. 2.2.2; 2.2.3; and 2.2.4).

Another major methodological problem of territorial planning concerns the identification of regions in a country for which plans should be prepared. Here again, however, the relevant principles are not yet sufficiently well developed, although attempts have been made to base such decisions on geographic, economic or administrative definitions of a region.*

It is our view that in selecting a region for planning activities all aspects of the process of development should be considered, including natural, geographic and social factors, as well as economic, political and administrative ones. A region must then possess a qualitative and quantitative definiteness, specificity and unity from all such points of view. It is on such a basis that regional planning develops as an autonomous form of planning. From the point of view of regional planning the coincidence of the economic boundaries of regions with administrative and political ones is especially important.

At the present time such boundaries do not coincide in most developing countries. The administrative and territorial division of regions often reflects social, tribal, racial and other distinctions inherited from the colonial past, and seldom corresponds to the needs of national development. Such divisions do not usually reflect the objective processes that create clearly defined economic regions with specific productive force location patterns, economic and geographic conditions, forms of working experience, working habits, and territorial patterns of specialisation. Specialised sectors within an economic region contribute to national productive and non-productive requirements. The specialisation of a region is largely determined by the existence of conditions that are relatively more favourable to the development of particular types of economic activity. This results in higher labour productivity and more effective production activities.

In the case of developing countries the process that produces such forms of specialisation is far from being concluded. This reflects their general economic backwardness.

* For details see E. Alayev, *Regional Planning in Developing Countries*, Moscow, 1973, Chapter 6 (in Russian).

At the present time the existing administrative divisions of developing countries provide the only available realistic basis for territorial planning. By defining the sphere of activities of local state bodies they lend an element of spatial determinateness to the country's development. This does not, of course, remove the need to improve such existing systems of administrative division in such a way as to bring them closer to still emerging socio-economic regional patterns. Territorial planning is basically a long-term process concerned with a rational location of productive forces and an overcoming of inequalities in the level of development of individual regions. These objectives cannot be met in the context of medium-term plans and are usually formulated in terms of 15-20-year plans for the location of productive forces and the bringing into play of the natural and manpower resources of each region of a country, including the most backward ones.

One may distinguish three basic types of territorial planning within the context of medium-term planning.

1. Sections within overall national plans that are concerned with the needs of individual regions. They usually encompass the territorial distribution of planned projects and processes, including the territorial location of investment projects, the distribution of the production of particular types of output among regions, and the determination of their participation in the production of the gross product and income.

In principle, however, the manner in which regional needs are reflected within overall national plans extends beyond a simple distribution of processes and projects on the country's territory. In particular, maximal co-ordination must be effected with processes of local development. This presupposes that overall national projects should receive contributions of labour and be supplemented by respective measures of the local authorities and that, in particular, additional production facilities be established, as well as elements of infrastructure needed by state enterprises. Thus the address-oriented features of overall national plans must be combined with a complex approach to territorial planning and development.

2. The design of special additional programmes or else of programmes within overall national plans that refer to regions possessing specific conditions and requiring special

measures. These may be regions in which droughts, floods and earthquakes have occurred, or else regions that are especially backward.

3. The preparation of special regional plans is effected by drawing up programmes for developing sectors of local significance, i.e. of the economy of an entire region or some part of it. Local planning organs usually carry out such work either independently or in co-operation with central bodies. Such forms of territorial planning are possible only when there are organs of local power that are sufficiently strong both in an economic and in an organisational sense, and when sufficiently competent planning organisations exist. Since this is far from being true in all developing countries, their creation is an important prerequisite for developing and improving overall national planning. In practice, regional programmes are often prepared for those regions in which major projects of national importance are being developed.

The highest form of territorial planning concerns the preparation of an overall socio-economic plan encompassing each of the country's regions. It includes complex programmes for developing the economies of individual regions and the sections of the overall national sectoral programmes that relate to these regions. The complex planning of regional development may thus be divided into at least two distinct processes. The first part of regional plans is prepared by regional planning bodies, while the second is prepared by the corresponding central organisations. It is important that both sections be co-ordinated. This requires corresponding forms of organisation for all planning activities. In particular, a co-ordination of all national sectoral programmes is needed in the context of each region in order that the centrally specified territorial programmes and projects be mutually complementary rather than contradictory.

The types of regional planning that have been considered differ in terms of both their contents and their functional role. The principal objective of specialised regional plans is to bring about a complex development of the corresponding territories, while the regional aspects of national programmes are concerned with an optimal spatial distribution of the corresponding sectors and processes of social reproduction.

In the sections that follow we will consider the main principles that govern the preparation of complex plans for developing a region. Such plans are components of overall national plans.

The point of departure is a socio-economic analysis of the region whose aim is to identify the actual level of development of productive forces and of the social sphere in the region and its main trends, and also all problems and difficulties confronting territorial development. An illustrative general scheme for such an analysis of a region's economic and social problems may be reduced to the following:

a) a quantitative as well as a qualitative evaluation in all sectors of production capacities and of their utilisation. This refers to capacities of local as well as of national significance;

b) an estimate of the volume of output produced by all these sectors (it is important to distinguish between the output that is consumed within the region, that which circulates among regions, and that which is channeled to the world market);

c) the identification of the types of output in which the region is to specialise;

d) a quantitative as well as a qualitative evaluation of territorial resources (including raw materials, energy and water resources as well as of the productive and social infrastructures) and of the degree of their utilisation;

e) an evaluation of the influence of the productive structure that has emerged on the region's economic and social development, including the level of employment and local incomes;

f) an analysis of the current state of interregional linkages resulting from a territorial division of labour, in order to identify the requirements a particular region presents in relation to other territorial units, and also the requirements that the national economy as a whole presents to an individual region. Such an analysis makes it possible to identify the major disproportions that exist within the system of interregional economic and social relations.

The regional plans that are prepared on the basis of such an analysis and in the context of the general conception of territorial development that is adopted for a given planned period must define:

a) the general trends of development of the region's economic structure that are to be emphasised with due consideration of a full utilisation of available resources;

b) the sectoral emphasis of capital investments in the context of both local and national productive activities;

c) the scale of development of all elements of economic infrastructure;

d) the scale of development of social infrastructure.

Once they are made mutually consistent and elaborated on a national level, regional plans are then included into overall development plans.

An important element of all territorial planning concerns the monitoring of the implementation of corresponding plans and programmes, the systematic evaluation of their results, and the timely entry into current plans and programmes of adjustments that unanticipated changes in external and internal factors of territorial development may make necessary. While that particular stage of territorial planning does not differ from the corresponding stage of overall national planning (cf. 2.2.8) in any important way, it must be carried out by both central and local planning bodies in close co-operation with each other. In developing countries the possibilities for introducing planning principles into regional development are greatly limited. The principal elements on which regional planning may depend include: first, the position of the state sector within the leading sectors of the economy, and second, the investment activities of the government. Nevertheless, the influence of these factors is usually more evident with regard to overall problems of development than to processes of regional development. Other conditions being equal, regional development processes do not lend themselves so much to regulation and to planning as does national development.

This is explained by the joint operation of a number of factors, including the uneven distribution of the state sector in the country's different regions and its general weakness in most of the least developed regions; the greater influence of backward, traditional methods and forms of production in the less developed regions; the greater influence of export enclaves and foreign monopolies on the development of some regions than on the economy as a whole; and limited possibilities for an indirect regulation of economic development that might be used in individual regions on

a selective basis. Because of these and many other reasons the planning of regional development requires a greater reliance on goal-oriented, and particularly exploratory forecasting, than does overall national planning (cf 1.2.2).

Additional difficulties for regional planning are produced by its simultaneous dependence on both central planning bodies and their local agencies at the level of regions and by its dependence on regional information systems. It must also be more specific than overall national planning and relate to specific local conditions. Finally, its informational requirements are of a more detailed technico-economic nature.

4.4. THE FORMS AND CONTENTS OF TERRITORIAL PLANS

Depending on both objective and subjective conditions existing in particular countries the real process of regional planning may encompass only individual spheres of regional development.

It is generally easiest to plan the activities of the state sector in the productive and non-productive spheres of the economy, and also to prepare measures relating to the state's regulation of economic activities.

In most countries the major form of territorial planning may be the preparation and execution of programmes of state social and economic activities as they are seen from a territorial point of view (at all levels of state power). In particular, this refers to programmes of state capital investment. In such a context the distribution of centralised investments among the country's territories is an important methodological problem. This includes both the selection of investment projects and their association with specific regions. In principle, the location at which capital investments are to be carried out should be chosen in such a way that the best overall national economic effect be achieved (for details see 2.2.3). But in defining the territorial structure of capital investments in developing countries it is important to consider not only the economic but also the socio-economic aspects of the development of individual regions.

The objective of planning the territorial structure of capital investments is to provide for both a comprehensive and a proportional development of individual economic re-

gions with maximal attention to all the factors that govern that development. Most important among these are: the degree of unevenness of development of individual regions and the intensity of interregional contradictions. Beyond this the following factors are also considered: the geographical position of each region, the presence of raw materials, energy, labour and other resources and their quality; its location in relation to markets; the state of development of the region's infrastructure; possibilities for a further processing of raw materials being produced; opportunities for the region's further participation in the national and international division of labour. Particular emphasis should be given to the most backward and depressed regions. At the same time factors that determine the level of capital investment cannot be ignored, particularly in the case of long-term plans. It is important to avoid projects that clearly lead to losses, as well as projects that merely carry elements of prestige.

In planning the development of the most backward regions other problems beyond the selection of the type of output in which they should specialise are likely to be important. It is therefore necessary to anticipate the development of corresponding elements of economic and social infrastructure and to give appropriate attention to general education, health services and the organisation of technoeconomic services for agriculture, forestry, small-scale industry, and retail trade.

An important aspect of territorial planning concerns the preparation of regional programmes embodying state policies, the carrying out of social reforms, and the regulation and control of the economic activities of both the co-operative and of the private sector.

Territorial programmes of state activities are intended to regulate and encourage the socio-economic development of regions and above all the material output in the state sector. They serve as one of the foundations for the next important form of territorial planning. This is the preparation and implementation of programmes of development and forecasts at the level of regions of private economic activities, particularly those of national significance.

The planning of the development of cities and of other populated areas is a distinct aspect of territorial planning. It includes the construction of new centres of this

type, as well as the expansion and reconstruction of existing ones. By far the greater part of these programmes relate to the development of urban infrastructures and to residential housing and utilities (cf. 3.2.3; 3.2.5). A distinctive feature of urban planning concerns its large emphasis on the planning and forecasting of social processes, and on problems of unemployment, slum areas, sanitary and medical services, and general education.

As the sphere of regional planning expands there is a gradual transformation of exploratory forecasts into goal-oriented forecasts and of goal-oriented forecasts into specific programmes. But this depends on the effectiveness of the state regulation of regional development. Particular sectors or spheres of social activity may thus be included in development programmes only when either direct or indirect means become available that permit the state to effectively regulate their development.

Thus territorial plans represent an integrated form of three major sections: 1) programmes of state activities viewed in terms of their regional aspect; 2) programmes and goal-oriented forecasts for developing major sectors of national and regional importance; 3) exploratory forecasts of all other processes bearing on territorial development. Of these only the first two relate to planning proper. It is evident that the first, namely, the group of programmes that encompasses all aspects of government socio-economic activity, is the central element of all territorial planning. This is a complex planning that integrates the territorial aspects of all state activities (social, economic, administrative, organisational, political, etc.) at all levels of state power.

Complex planning requires that the most important planned and forecasted sectors and processes be selected, namely, those that subsequently serve as the basis for all planning calculations. In most cases such a calculation basis of territorial planning is provided by agriculture, but depending on the region this may be some other sector, such as the mining industry or tourism.

Thus, as in the case of any other type of planning, territorial planning calls for a clear specification of the main object of planning itself, as well as of the means and methods to be employed in implementing programmes relating to its development. When the major object of planning is

the state's regional policy for example, then it is impossible to implement approved plans without fully specifying the corresponding organisational, economic and administrative measures and then subsequently implementing these measures. Similarly, in planning socio-economic processes the corresponding auxiliary programmes must specify the necessary means and methods of state economic policy, but in order to carry out the latter corresponding organisational, economic and administrative measures are needed that fall into the sphere of the state sector in the broad sense of the word (which includes state administration). All these programmes must be mutually co-ordinated.

5. THE USE OF ECONOMICO-MATHEMATICAL METHODS IN THE PREPARATION OF PLANS

5.1. AN ANALYSIS OF CURRENT PRACTICES AND FORMULATION OF THE PROBLEM

The specific features that characterise the economic, social and political position of developing countries, as well as actual possibilities of obtaining required information, place definite limits on the possibility of applying various models and mathematical methods in producing plans and socio-economic forecasts. In the present section an attempt is made to identify the most appropriate spheres and limits within which such models and methods may be applied in developing countries in elaborating national plans and especially in providing for the internal consistency of such plans.

Initially the economic plans of newly independent countries represented an aggregate of uncompleted projects initiated by former colonial administrations. Nearly all developing countries have experienced such a stage in some form. In economic literature it is often called the "pre-planned stage" of such economies for which "experimental" and "preliminary" plans are prepared. This is true, for example, of India's first five-year plan (1950-1955), Pakistan's plan for 1955-1960, Ghana's plans (June 1959-June 1964; and Jamaica's plan (1957/1958-1966/1967) and of similar plans in many other countries.

At that time it was almost altogether impossible to arrive at statistical estimates of the state of a country's economy as an integrated entity, and to identify potential reserves for its development. Projects and the contents of partial programmes were determined not so much by the objectives of economic development as by accidental and subjective factors. The principal objective in most cases

was to complete those projects and works already initiated that in the opinion of the new governments served major national interests.

Long-term overall national objectives and tasks of development were then usually forecasting estimates and expressions of wishes that were not supported by analytical calculations and concrete programmes for developing specific spheres and economic sectors. In most cases, moreover, the authors of these plans did not consider the problem of making them internally consistent, and the formulation of tasks and objectives was often completely separated from an analysis of actual possibilities for achieving them.

The second stage of economic planning in developing countries may be described as a transition to the preparation of comprehensive overall national plans.

An important prerequisite for improving the quality of planning activities was the development of statistical services in many developing countries, and in particular, the organisation of national accounting as a basis for the calculation of the macro-economic indicators of many national plans.

There were improvements in the organisational structure of planning bodies as well, and a greater emphasis was given to their participation in controlling the implementation of planned indicators. In particular, they began to monitor and control the planning activities of sectoral ministries and of other agencies related to planning and to coordinate their activities.

In a significant number of countries a diversity of balance-oriented models and other economic models began to provide a basis for the preparation of plans. Their design was largely adapted to available statistical data and indicators of national accounts. They generally envisaged two types of problems: a) the calculation of overall economic indicators for a given period (a general evaluation of the economic situation and rates and prospects of economic development) and b) a specification of the requirements of an internal consistency of plans and of linkages between various levels of planned indicators.

Models of economic growth of the Harrod-Domar type and production functions were employed for solving the first of these problems. Both these models make it possible to arrive at a general (forecasting) estimate of economic

development and to identify ways to achieve further growth. This follows the identification of major factors influencing economic growth.

As for the internal consistency of plans, the determination of intersectoral proportions, and the subdivision of plans in terms of projects, the relevant calculations are based on elaborations of models formulated in terms of sectors and branches and on calculations of intersectoral balances.

Generally the results of applying economico-mathematical methods (models of growth and intersectoral balances) to planning were probably positive. For the first time in history national governments in Asia, Africa, and Latin America acquired the possibility of identifying major trends in the national economies of their countries and of exerting an active influence on their further development. The major factors governing the formation and distribution of the final product (and of national income, which represents its main component) were identified.

Yet in recent years there has been a clear decline in interest in economic models on the part of planners in developing countries, and doubts have been expressed with increasing frequency concerning the extent to which the use of such models has been justified.

This had become particularly evident by the middle of the 1960s. By the early 1970s by far the greater part of the number of developing countries either ceased to use economic models as a basis for developing national plans altogether, or else reduced appreciably their use in solving major problems.

The major reason for such a decline in interest in the application of economico-mathematical methods for purposes of planning appears to be that they only encompass the level of macro-economic indicators, and that it is not yet possible to link them with sectoral or project-oriented planning. More specifically, whenever plans developed on such a basis refer to a definite sectoral project, these cannot be linked with the plan's overall indicators.

The planning bodies of developing countries were often unable to establish a close linkage between macro-economic models, on the one hand, and concrete planning objectives, programmes and projects incorporated into the plan, on the other.

Yet once they obtain a general picture of the current state of their economy and once they specify strategic objectives, the planners and political bodies of developing countries must identify specific tasks for implementing them, and this is impossible without linking plans to specific projects and programmes.

The very possibility of embodying the general value indicators of plans and programmes into physical indicators has become a central issue. To an increasing extent the planners of developing countries recognised that ultimately it is physical indicators, such as metres of cloth, tons of steel or petroleum and numbers of tractors, lathes and automobiles that establish the specific contents and national economic significance of particular programmes and the outcome of specific strategies for achieving growth. While value indicators and models of growth that are based on such indicators are unquestionably of great importance as generalising characteristics and initial guidelines they cannot serve as the basic and sole working instrument for elaborating plans to the level of concrete decisions.

Neither intersectoral balances nor econometric models have made it possible to provide answers to the problem of finding a linkage between macro-economic value indicators and concrete physical plan indicators.

Value indicators for aggregated balances do not reflect (or else reflect insufficiently) the commodity linkages that exist among sectors; above all they do not make it possible to arrive at a set of physical plan indicators.

Just the same this incomplete survey of the problems that are encountered in applying economico-mathematical models and methods to planning offers no grounds for doubting the desirability of such a practice. The main issue concerns establishing the limits within which they may be employed, as well as the most appropriate areas where they may be employed. In other words, it concerns the identification of those planned tasks that may be assisted by such methods in conditions existing in these countries.

Economico-mathematical models describe different aspects of socio-economic processes in the language of mathematics. Such models are formalised in order to solve some specific problems in which formally described aspects play an important role. It is in such a context that the adequacy of economico-mathematical models in describing the cor-

responding objects may be established. The usefulness of the decisions that are obtained on such a basis depends entirely on the correspondence of the models that are employed to the problems that are considered. By themselves mathematical methods cannot introduce errors into the consequences of decisions. The practical usefulness of economic-mathematical methods in planning socio-economic development is thus determined exclusively by the correspondence of the mathematical models that are employed to the objectives and specific conditions of planning activities.

It is impossible to formally demonstrate that a given mathematical model is adequate for representing a given socio-economic object. This is because formal logical approaches generally are effective only when a correspondence is established between the models themselves (postulates) and the conclusions that are inferred from them. Internally, a formal logical approach is independent of the accuracy of the models (postulates). The adequacy of mathematical models, as of any others, can only be tested experimentally in terms of practical activities. Procedures for comparing particular models with reality depend on the methods that are employed.

Mathematical models and methods may be applied at literally every stage of planning. They may be effectively applied at the pre-planned stage for analysing the outcome of preceding developments and for forecasting future trends. They can be quite useful at the stage of preparing plans, particularly in establishing a plan's internal consistency. They may also be quite useful at the stage of verifying plan implementation.

Of course, the problems of planning socio-economic development may be solved without mathematical models and methods as well. Yet their use can facilitate the planning process substantially, make it more rapid, and provide better solutions for the corresponding problems. This is especially important. In particular, it is mathematical models and methods that make it possible to calculate and consider simultaneously a number of plan variants and select the one that is best.

Yet the effectiveness of particular models and methods depends entirely on the extent to which their specific features will correspond to the specific objectives and conditions of the real problem situations that are being resolved.

Without pausing to describe in detail the economico-mathematical methods themselves, we will seek to show the limits and possibilities of applying the major types of such models to the planning of socio-economic development in newly independent countries. As for the methods themselves, one may learn about them more fully in appropriate manuals. We will consider first those economico-mathematical models that are employed primarily for forecasting future development and then those that are applied primarily in establishing internally consistent plans.

5.2. MODELS OF ECONOMIC GROWTH AND PRODUCTION FUNCTIONS

Mathematical models that are applied for forecasting the dynamics of economic values are usually constructed on the basis of so-called production functions. These establish a stable relation between resource expenditures (factors of production), on the one hand, and levels of output (product, revenue), on the other. Production functions themselves are models of economic growth.

The simplest production function, that of Cobb and Douglas, describes the dependence of an output (P) on expenditures of capital (K) and of live labour (T) and has the following form:

$$P = qK^a T^{1-a}$$

where q and a are function parameters.

Generally production functions employed in models of economic growth have the following appearance:

$$P = f(X_1, X_2, \dots, X_n),$$

where X represents different types of resources that are expended and other factors.

Models of growth usually mean such macro-economic models that describe: a) the growth of an economy in a stationary state; b) an equilibrium (balanced) economic growth; c) an equilibrium economic growth in a stationary state.

The growth of economies in a stationary state is modelled through production functions. The simplest type of equilibrium growth models (single-factor) which describe growth in a stationary state is the Harrod-Domar model. This de-

scribes the dependence of increments in output (or income) — P on increments in capital investment — K (savings) and the capital coefficient C in the following form

$$P = \frac{K}{C}.$$

In this model the capital coefficient essentially represents a parameter of a one-factor production function

$$P = f(K).$$

All multiple-factor models of growth are also based on some type of production functions that are supplemented by equations defining the dynamics of individual product elements (output) and of the resources (capital, live labour, natural resources, technological progress, etc.), and also by balance equations that describe the interdependence between particular elements of output and expenditures.

Production functions may describe the relation between expenditures and outputs at any level, macro-economic, sectoral, the level of enterprises, or that of specific types of output. Growth models are macro-economic models.

Following this brief description of models of growth and of production functions let us consider the type of problems for which they may be employed and to what extremes they may be used in the preparing of plans in developing countries. In particular, let us consider production functions from such a point of view, since they also provide a basis for other models of economic growth.

Above all, it is important to emphasise that neither production functions (neither at the macro-economic level, nor in most cases, at the sectoral level as well) nor other models of economic growth can serve as a *basis for planning*. At best they may represent one of the working instruments and methods that are employed in preparing economic plans in developing countries. In describing the results of future economic growth, at some level of confidence, such economic-mathematical models express the macro-economic characteristics of the system of "social reproduction". This process largely occurs in a spontaneous manner and is not guided by the government. It refers to such elements as the overall level of savings or capital investments, including those in the private sector, the relations of capital to output, and expenditures of live labour. The system parameters

that are obtained on the basis of such models are therefore essentially of a forecasting nature.

The usefulness of models of economic growth generally for purposes of forecasting is particularly limited in the case of developing countries. This follows from a number of their properties some of which have already been mentioned.

Models of growth and the production functions on which they are based describe economies in a stationary state. This is because the parameters of such functions (for example, the capital-output ratio, or other parameters characterising the dependence of the magnitude of the output on expenditures of capital and of live labour) are entered as constant magnitudes. These magnitudes are usually established through use of statistical methods, on the basis of a given country's past development experience.

Production functions thus presuppose that the qualitative state of the economy does not change. Yet in the meantime, the strategies of development and planning adopted by developing countries are primarily aimed at achieving qualitative changes in the economy, since these are viewed as the primary means for achieving economic growth. This produces a clear non-correspondence between the objectives of economic planning and the use of models of growth as an instrument of plan elaboration. In short, when production function parameters are estimated statistically on the basis of past experience the area for which these functions are determined should be limited to past history alone, and its extension to the future is logically unjustified. It is possible to accept such functions for forecasting purposes, that is, to move beyond the boundaries for which they are valid only when no qualitative changes occur within the corresponding time intervals and when there are no structural shifts in the economy that could influence the specified relations between output and resource expenditures.

In principle, it is possible to overcome these shortcomings of production functions (as well as of other models of economic growth). Formally, the simplest way for doing this is to select function parameters that reflect the planned qualitative shifts in the economy. Their values may be borrowed from the experience of other countries or else determined in some indirect way. But there is no certainty that functions possessing such parameters will describe the future state of the economy with sufficient precision. This may

be tested only empirically, namely, by waiting until the state will in fact occur. But the given model then loses its meaning as a forecasting instrument.

The second way is even more complex and even less applicable in conditions that characterise developing countries. This is the introduction of variable parameters into the model of growth that change in the course of time (for example, the introduction of additional functional relations between coefficients of capital and output and the sectoral structure of basic capital), i.e. the construction of non-stationary models of growth.

Without mentioning the complexity of creating such dynamic models, particularly when they are multiple-factor dynamic models (in principle only such models may accurately reflect the influence of all factors on the relevant dynamics and on the final outcomes of development), it should be noted that it is impossible to construct them for developing countries, above all because of the absence of the information needed to establish their numerous parameters.

The next group of problems that explains the limited applicability of growth models for forecasting purposes in developing countries concerns the stability of the qualitative attributes in terms of which individual components of such models are measured, and thus the possibility of arriving at an internal consistency of these models.

It is well known that output and capital in production functions are measured in constant prices. It is assumed, moreover, that constant prices measure physical volumes as opposed to current prices which reflect value magnitudes. It is also well known that such methods of measurement are permissible only in cases in which the structure of the object being measured remains constant or practically constant. The actual high degree of mobility that exists in the material composition of capital and of output in developing countries, particularly in conditions of rapid changes in value proportions, serves as a highly negative influence on the capacity of growth models to accurately reflect actual states of the economy.

It should also be noted that most models of growth that are employed in the planning practice of developing countries are constructed on the basis of production functions that only consider either one production factor, namely, capital or else two, capital and labour. Yet, economic growth

is highly sensitive not only to quantitative factors of production, but also to many qualitative factors, such as the equipment and technology that are embodied in the basic capital, and natural factors (the character and quality of natural resources) as well as to the particular socio-economic conditions within which the economic, labour, technological, and natural resources are expended. These considerations also reduce the usefulness of growth models for forecasting purposes.

In summarising these properties of models of economic growth and of production functions and also their specific features resulting from the specific conditions of developing countries, it is possible to define reasonably well the areas to which they may be applied in newly independent countries in preparing plans of socio-economic development.

Mathematical models of economic development and production functions are a good working instrument for analysing the development of an economy at the macro-economic level. They make it possible to establish certain important relations between the resources that a society expends and the general outcome of production activities as expressed in value form.

These models may be employed for forecasting calculations of such important economic indicators as gross product and national income, or else of estimated requirements for basic types of resources (above all of capital and labour) needed to bring about the expected growth in output. Yet the results of such calculations cannot be usually accepted as a basis for preparing economic plans. In the case of developing countries they are basically of a forecasting rather than of a planning nature, and require additional checks by other methods, particularly when there are reasons to believe that major qualitative shifts in the economy will take place during the forecasted period, or else that the model does not consider particular factors of growth that may in fact influence economic growth substantially (as taken from the angle of the accuracy of forecasts).

To establish the reliability of calculations based on models it is obviously desirable to compare growth data for output (or income) obtained from models with summary data derived from direct calculations for investment projects included in the plan and from forecasting estimates for economic sectors and types of output that are not being planned.

5.3. INTERSECTORAL BALANCES ("INPUT-OUTPUT" TABLES)

At the present time mathematical methods for analysing economies are based in varying degrees on mathematical models of intersectoral balances. These describe intersectoral linkages with the help of linear equations (algebraic or differential).

In constructing models of intersectoral balances the following simplifying assumptions are made:

1) the properties of macro-economic models are produced (determined) only through the interaction of its micro-particles;

2) each sector produces only one type of output, and each item is produced by only one sector. The output of each sector is assumed to be qualitatively homogeneous independently of where it may be used. Output is qualitatively homogeneous when its composition and structure are the same;

3) each sector consumes only one type of primary input that cannot be reproduced by the system's sectors, namely, labour (the consumption of unprocessed natural resources is not considered);

4) there is a fixed composition of production inputs in each sector that does not depend on the volume of production (the assumption of linearity);

5) in models of intersectoral balances expressed in monetary terms it is assumed that the production and consumption of intermediate products is not mediated by stocks. Intermediate products are immediately transferred to consumer sectors without taking the form of stocks.

✓ In order to estimate the extent to which these assumptions do not correspond to the actual state of things, let us observe the following. Generally each sector produces several types of output simultaneously, while each product is produced by several sectors. Each sector consumes primary natural resources to some extent. The structure of inputs into a sector is in fact not fixed, and depends substantially on the volume of production. With few exceptions each type of output inevitably passes through a stage at which it is stored in stocks located either within the production sphere or else in the distribution sphere, or else still in the consumption sphere. Of course, all these digressions must be

kept in mind when intersectoral balances models are in fact employed. At the same time these shortcomings do not exclude altogether the possibility of employing such models in economic and planning analysis.

Intersectoral balances may be constructed both in a monetary and in a natural form. They are based on a chess-board-like table describing intersectoral flows. In terms of their structure they represent, as it were, a combination of two tables, one of which describes expenditures on output, while the other describes the distribution of new output.

Physical intersectoral balances consist of two sub-tables (cf. Table 1). The first represents sources of production resources (in terms of types), including production, import, and stocks at the beginning of the period. The second describes the utilisation of resources to produce new output (in terms of the same types) and to serve final consumption.

The nomenclature of intersectoral balances in physical terms is selected in such a way as to include the most important types of output. These are entered along the rows in terms of physical units of measurement (tons, kilometers, kilowatts, pieces). The nomenclature of the balances is usually designed in such a way that the value of the products that are included represents the major part of the gross social product. In constructing balances in physical terms, an effort is made to aggregate individual commodity groups more widely. But possibilities for aggregating are then greatly limited by the need to rely on physical indicators.

Intersectoral balances in physical terms are calculated in relation to gross turnover. In defining the types of expenditures all types of output are then considered, both those that are received from the outside and those that are produced within the given subdivision. In this respect they differ from intersectoral balances expressed in monetary terms, which are constructed primarily in terms of the plant method in which only inputs received from the outside are considered. The calculation of gross output in terms of gross turnover is attractive primarily because the coefficients of direct expenditures are independent of the organisational structure of production.

Intersectoral balances in monetary terms contain four quadrants (cf. Table 2). The first quadrant describes the intersectoral flows of output in such a way that producing sectors and consuming sectors possess the same classification.

It is this which underlies the chessboard-like construction of this particular quadrant. The overall total associated with the first quadrant describes the volume of intermediate output and reflects the production-oriented turnover of objects of labour and of material services.

The first quadrant is located between the second and third. The second quadrant of the intersectoral balances describes the material composition of final consumption, while the third describes the composition of added value (elements of pure revenue and depreciation). The fourth quadrant represents the outcome of a partial redistribution of newly created value.

The conceptual basis of intersectoral balances requires that the following two balance relations exist between these quadrants. First, the totals of corresponding rows and columns must be equal to each other. That identity is explained by the fact that in monetary terms the general volume of expenditures must be equal to the gross product. Second, the overall total of the second quadrant must be equal to that of the third. This is explained by the fact that added value produced in the economy must equal the value of final consumption.

It is not difficult to show that the requirement of equality between aggregate totals of similar corresponding rows and columns is a direct consequence of ignoring the role of stocks in constructing intersectoral balances in monetary forms. The assumption that all transfers move directly into consumption makes it superfluous to distinguish between materials that are consumed and those that are entered into stocks.

In order to effectively provide for the equality of the sums of corresponding rows and columns within an intersectoral balance several adjustments must be made. The simplest way of entering such a correction (but not necessarily the best), evidently calls for the inclusion of an additional row into such balances, entitled "value of changes in the sectoral stocks of externally produced output" (with a reverse sign).

There exists a number of modified forms of intersectoral balances. But these differences only relate to minor details, while the fundamental pattern for constructing such balances remains unchanged. These modifications have resulted from the diversity of objectives that such balances may serve, as

Table 1

The structure of intersectoral balances in physical terms

Name of product (index)	Unit of measurement	Total	Required resources including :		Utilised resources					
			produced	Other resources (imports, stocks at the beginning of the period)	For production activities (in terms of types) — consumption for production purposes				For final consumption (replacement and accumulation of basic funds, stocks and reserves at the end of the period, personal and social consumption, exports, losses)	Total resources utilised
					1	2	3	Total		
1										
2										
3										

Table 2

Structure of intersectoral balances in monetary form

Producing sectors	Consuming sectors				Total 1st quadrant	Final consumption					
						Non-productive consumption	Accumulation fund	Replacement of basic funds	Net balance of exports and imports	Total 2nd quadrant	Total gross product

First quadrant

Second quadrant

1

2

3

Total of 1st quadrant

Third quadrant

Fourth quadrant

Depreciation

Wages and salaries

Profits

Total for 3rd quadrant

Total gross output

well as from differences in the theoretical conceptions of individual authors.

Intersectoral balances may be divided into two large classes, namely, static balances and dynamic ones. In static intersectoral balances capital investments are usually included into the third quadrant, while in dynamic intersectoral balances they are usually excluded from the third quadrant. In other words, the magnitude of capital investments in dynamic models is inferred endogenously from the volume of output of subsequent years. Both static and dynamic intersectoral balances may be constructed on the basis of accounting data for preceding periods, as well as on the basis of long-term plan indicators.

In terms of the objects that are being modelled intersectoral balances may be divided in the following way: national intersectoral balances, which are constructed for individual countries; international intersectoral balances, describing economic linkages among different countries; regional intersectoral balances, that are constructed for individual regions in a country; interregional balances describing production relations among different regions within a country; and sectoral balances, constructed for individual sectors in the context of an entire country or else a region. All these types of intersectoral balances are constructed in accordance with a common scheme and differ from each other only in terms of the information that they encompass.

The mathematical model that underlies intersectoral balances is based on a system of equations whose coefficients are determined with the help of intersectoral flows. In matrix form the corresponding system of relations is written as follows:

$$(1 - A) X = Y,$$

where A is a non-negative square matrix of direct input coefficients, each of which indicates the quantity of output of one sector that is required to produce a unit of output of another (the result of a division of the elements of each column of the first quadrant by the overall sum of the columns of the first and third quadrants); X is a column vector of volumes of output (overall sums of either columns or corresponding rows); Y is a column vector of final con-

sumption (sums of rows of the second quadrant); 1 is an identity matrix.

The $(1-A)$ matrices are called the matrix of input-output coefficients. It possesses the following interesting property: elements of the inverse of that matrix, namely $(1-A)^{-1}$, represent so-called full expenditures coefficients, which determine the norms of gross output of different sectors needed to produce a unit of output of a given sector assigned to final consumption. In other words, elements of the inverse matrix $(1-A)^{-1}$ establish a correspondence between those increases in output of a given sector that are assigned to final consumption and the corresponding increments in the gross outputs of all sectors.

It should be noted that one of the main objectives in utilising intersectoral balances in economic analysis and planning is precisely to establish a correspondence between these two indicators of production. That problem usually reduces to a search for the vector of volumes of outputs that corresponds to a given vector of final consumption. The general solution of that problem has the following form:

$$X = (1 - A)^{-1}y.$$

In interpreting the economic meaning of the elements of an inverse matrix as coefficients of full expenditures one should keep in mind that actually they do not represent this. For these coefficients reflect only expenditures on objects of labour and neglect the consumption of instruments of labour in the course of production. In order to determine the actual full expenditures the unit expenditures on depreciation should be added to unit expenditures on objects of labour. If one denotes the matrix of depreciation coefficients by F , then the output vector will be defined in accordance with the formula

$$X = (1 - A - F)^{-1}y.$$

Full expenditures coefficients serve as the basic instrument in constructing balanced plans of the basis of intersectoral models. They make it possible to quickly carry out calculations corresponding to a large number of variants that establish the influences of the development of particular sectors on the output of other sectors. They make it possible to determine rapidly the nature of the relationship that exists between any two sectors, both the

✓ direct and the indirect ones that are mediated by the entire production structure. The degree of plan consistency that is achieved with the help of models of intersectoral balances therefore depends entirely on the confidence that may be attached to full expenditure coefficients. If they are not reliable and if they reflect reality in a distorted manner, the corresponding calculations of planned indicators will in fact be unbalanced and will not be mutually consistent.

✓ One should again emphasise that strictly speaking both the coefficients of direct expenditures and the full expenditure coefficients describe inputs of productively employed materials but not inputs of all commodities entering a sector (including changes in stocks). It is therefore better to calculate coefficients of direct expenditures after the corresponding adjustments are made (in the first quadrant of the intersectoral balances, for example) by subtracting from each transfer of a given commodity the magnitude of changes in sectoral stocks.

✓ Coefficients of expenditures in monetary form require particular care. For unlike the corresponding coefficients in physical terms they are sensitive not only to the structure of the technological methods that are employed and measurement procedures, but also to the structure of market prices. In this case, therefore, the validity of calculations depends on the degree of certainty that both structures are in fact constant. In situations in which value proportions change, the assumption concerning the constancy of coefficients of direct expenditures in monetary form will inevitably lead to false conclusions, even if the structure of technological methods were to remain unchanged. For the same reason it is not possible to use coefficients of expenditures in monetary terms borrowed from the statistics of other countries. In particular, coefficients of expenditures of a developed country cannot be applied to any other developed or developing country, since the corresponding value proportions usually differ substantially.

Aside from coefficients of direct and of full expenditures, coefficients of output distribution and coefficients of direct and of full labour-intensity and asset-intensity of production activities also play a large role in the analysis of intersectoral relations. Distribution coefficients are found by dividing the elements (material flows) in each row of the

first quadrant by the joint sum of the rows in the first and second quadrants. The distribution coefficients thus indicate the share of each sector in the consumption of a particular product. This reflects the composition of the distribution of the given product among all sectors.

Distribution coefficients are quite unstable over time. But their independence from the system of prices (given common prices for each type of output) in terms of which intersectoral flows are measured make it possible to utilise them in economic analyses. In particular, they may be applied to international comparisons of intersectoral balances when material flows in comparable countries are measured in different currencies.

Intersectoral balances also make it possible to consider information concerning the utilisation of labour power and of basic assets in the process of material production. In such cases the table of intersectoral balances is supplemented by two additional rows lying outside the balances. These describe for individual sectors of output the average number of employed persons per year (L) and the average yearly volume of basic assets (F). These indicators make it possible to calculate (by analogy with coefficients of direct expenditures of objects of labour) coefficients of direct labour intensity of output describing the mean specific labour expenditures and coefficients of direct assets-intensity of output describing the means specific requirements for basic assets. This in turn makes it possible to calculate coefficients of full labour-intensity and coefficients of full asset-intensity. In terms of their economic meaning these are interpreted in a way that is similar to coefficients of full expenditures of objects of labour. In other words, coefficients of full labour-intensity and asset-intensity describe the requirements of each sector for labour and basic assets in producing a unit of final product of the given type.

Since we are interested above all in clarifying the possibility of utilising models of intersectoral balances for purposes of planning socio-economic development in newly independent countries, let us consider the specific characteristics that attach to overall national intersectoral balances in developing countries.

In developing countries studies of intersectoral balances have become relatively widespread towards the middle of

the 1950s, and at the present time intersectoral tables appear to have been constructed in more than twenty developing countries of Asia, Africa, and Latin America.

Intersectoral balances have been used for planning socio-economic development in these countries in four major ways, namely, the analysis of existing economic structures; the analysis of macro-economic consequences of taking specific decisions; the adjustment of planned calculations (the identification of "bottle-necks" and the co-ordination of the various sectoral programmes); and forecasting (generally of a short-term nature of the type that does not envisage major changes in the national economic structure within the forecasting period).

A survey of intersectoral tables constructed in developing countries has shown that they possess the following general characteristics: they are generally constructed in monetary terms; they are static; and they are highly aggregated. Some of them provide little information concerning agricultural production activities, even though agriculture continues to play a major role in the economies of developing countries. Aspects that bear on the development of the services sector are also poorly reflected, even though that sector is larger in many countries than is the industrial sector, both in terms of its contribution to the gross domestic product and in terms of employment.

Open economic systems within which imports and exports play an important role are characteristic of the national intersectoral balances of developing countries. In view of the existence of multistructural economies, and of the relatively undeveloped state of commodity-money relations linkages among individual parts of the economy are relatively weak. As a result, many cells in tables of intersectoral balances remain unfilled. Because of the need to consider imports and exports the requirement of homogeneity of output (that outputs are identical in all uses) must be followed in arriving at a greater sectoral disaggregation. If, say, the exports of a sector in physical terms differ from its average structure of output, this points to the existence of an obvious violation of the homogeneity premise.

In developing countries, however, a number of factors limit the possibility of a more detailed representation of production sectors. First, this follows from the shortcomings of the statistical system. Most tables are based on

production census data for a given year that encompass such important sectors as extraction, construction activities, and a number of sectors in the processing industries. But while such census activities may be relatively frequent and relatively detailed in the case of major and medium-sized enterprises, the information that is available for light industries and crafts, which play an important role in the economies of developing countries, is clearly inadequate, does not include vital details, and is often far from reliable.

The problem of disaggregating sectors is linked to the stability of coefficients. At the present time there does not exist a common view among the economists concerning the degree or even character of changes in technological coefficients that take place in developing countries.

Some economists accept the view that in principle, coefficients change linearly. Gustav F. Papanek, for example, has come to the conclusion that coefficients are stable on the basis of calculations of added value in relation to volumes of sales. A similar view is held by Indian economists who have employed intersectoral balances to carry out forecasting studies of the Indian economy in 1975. These calculations assume linear changes in coefficients. The well-known Pakistani economist, Razul Rahman, on the other hand, holds the view that even though there may be very little information concerning the composition of intermediate consumption, such relations may be shown to be non-linear.

Actually, providing that they relate to sufficiently aggregated indicators, or else to sufficiently large groups of homogeneous enterprises, technological coefficients may be relatively stable.

Yet in developing countries the groups of homogeneous enterprises are rather small. The small number of enterprises in a group, quite naturally, do not provide for the necessary stability of their average coefficients. It is possible to somewhat increase this stability by combining a large number of non-homogeneous enterprises into a single sector. For example, all enterprises producing food products may be formally combined into a single sector. The average indicators for such an aggregated sector will be more stable if the composition of the gross output of food products in the country does not change. Such indicators, however,

will not adequately reflect the actual state of affairs because the assumption of linearity will be violated. The relation of inputs to outputs can't be directly proportional only in cases when the composition of inputs into the enterprises included in the sector do not differ much from each other. Thus when a sector includes heterogeneous enterprises with different input compositions linearity cannot be assumed. The coefficients that are then obtained for average inputs have little in common with the actual situation. They will depend substantially on the basis that has been chosen for combining its elements together.

It should be noted that the failure to solve the problem of aggregation and disaggregation of output reduces substantially possibilities for a practical application of models of intersectoral balances, especially in the case of developing countries. There it has produced a truly unsurmountable obstacle to the application of models of intersectoral balances in economic analysis and planning.

A characteristic feature of economies of developing countries is that for a number of reasons the national income expended by such countries differs from the national income produced on their own territories. This may distort substantially the image of the country's economic situation that intersectoral balances produce.

For all these reasons in using intersectoral balance models in planning their development it is not always possible to rely on averaged (accounting) coefficients. In view of their instability and inadequacy it is only in a loose conventional sense that one may refer to the coefficients of full expenditure of objects of labour and the coefficients of full labour expenditures and of full labour intensity of output, which play a major role in establishing the internal consistency of corresponding planned requirements for objects of labour, labour power and basic assets. Above all long-term calculations require an adjustment of accounting coefficients in accordance with forecasts of the future development of individual sectors of production. The difficulties that arise in this connection concern the possibility of changes in value coefficients produced by changing prices, including prices on exported and imported products, and also by changes in conditions and in the volume of production activities which may create sharp fluctuations in the magnitude of such coefficients whenever the construction of

two or three major new enterprises produces far-reaching shifts in the entire structure of production, as well as in intermediate and final consumption activities.

The many fundamental obstacles that attach to the use of intersectoral balances in value terms are thus similar to those that attach to the use of growth models. They follow from disruptions in the stationary character of these mathematical models and from difficulties in obtaining information.

It should be added that long-term value-oriented intersectoral balances can only be of a forecasting nature.

At the present time there does not as yet exist a generally accepted scientific methodology for entering adjustments into coefficients. In particular, the suggestions for forecasting their dynamics that have been proposed in the literature, such as, for example, by comparing coefficients over a number of periods or else comparing recorded gross output with outputs inferred from the use of intersectoral balances, are neither theoretically justified nor practically adequate.

The first of these methods assumes that there exist several comparable balances over a period of years. This is at best realistic for only the largest developing countries (such as India, Pakistan, Brazil and Argentina). In most developing countries, however, the analysis and adjustment of coefficients requires a study of rather long statistical series. But even this offers no safeguards against forecasting errors.

Still these shortcomings do not fully exclude the possibility of utilising models of intersectoral balances in planning calculations. In particular, they may be applied to calculate preliminary variants of plans of development (that still require adjustments), although it will be difficult to estimate the extent to which such plan variants will in fact be internally consistent.

The shortcomings of national intersectoral balances that may emerge in planning calculations for developing countries will largely vanish when they are employed to analyse the current economic state of these countries. This is because such analyses little depend on average coefficients and do not depend on their stability at all. The use of intersectoral balances in economic analyses makes it possible to calculate the actual full expenditures of objects of

labour and the actual full labour-intensity and full asset-intensity of macro-economic outputs (providing, of course, that these balances are constructed on the basis of sufficiently reliable statistical data). In fact without intersectoral balances these and many other calculations are hardly possible. The information that they contain provides a snapshot, as it were, of the overall outcome of the real process through which the production, distribution and consumption of the social product at a given moment of time takes place.

The use of intersectoral balances for economic analyses also presupposes that they may be constructed relatively quickly. Yet the construction of such balances is labour-intensive, even when sufficiently reliable information is available.

That problem is clearly more severe in the case of developing countries. Accordingly, the development of methods that will make it possible to effect such calculations quickly and on the basis of small volumes of information is an indispensable prerequisite for the practical application of intersectoral balances in developing countries.

There exist at least two methods for constructing intersectoral balances of the input-output type (cf. 2.2.1):

1) the market-oriented method, which is based on an examination of the distribution of commodity flows from producers to consumers (the table is then filled along horizontal rows);

2) the expenditures-oriented method which is based on an examination of the expenditures of different sectors on the production of particular types of output (in such cases the table is filled vertically, along columns).

The choice of one of these two methods depends on the nature of available information. When both types of statistical data are available, it is possible to check the accuracy of calculations relating to the intersectoral balance matrix.

In developing countries possessing a modest information or statistical base, one generally finds only data concerning expenditures on production. Tables are then filled vertically.

In addition to these two methods, a number of relatively simple procedures of approximate calculations have been developed. While their use produces a certain loss in accuracy, it also facilitates substantially and makes much more rapid the work that is required. In most cases they

centre on reducing the input-output matrix to a triangular or a block-diagonal form. This is made possible by specific properties of economic matrices (the first quadrant of intersectoral balances), namely, of their ability to form relatively closed technological blocks, and by effecting linked transpositions of their rows and columns in such a way that the main linkages of the first quadrant may be moved either above or else below the main diagonal. A further analysis of that sphere may simplify the procedure for constructing the intersectoral balances, thereby increasing the possibility of their practical application in developing countries.

The efforts required to construct intersectoral balances may also be reduced by diminishing the size of the economic matrix (that is, by aggregating the sectors entering into the balance and thus reducing their number). This also reduces the volume of information required.

It should be recalled that both the coefficients of direct and full expenditures and all calculations that are based on them depend substantially on the structure of prices in terms of which intersectoral flows are measured. For different price structures the value of coefficients will turn out to be quite different. In short, all planning and forecasting calculations that are based on intersectoral balances in monetary terms make sense only when commodities continue to be bought and sold at the prices of the reference period, while changing prices will produce a strong distortion of all plan indicators. Accordingly, when unstable prices exist the internal consistency of plan indicators, obtained through the use of intersectoral balances that assume fixed prices, is no more than a conventional conception. For although such indicators may appear to be internally consistent in terms of fixed prices, in terms of actual prices they will contain disproportions. Clearly the problem of their consistency in terms of real prices is a major issue.

In conclusion, without solutions to the problem of aggregating production activities there are no grounds for expecting models of intersectoral balances to provide an effective basis for calculating plan indicators in general and for ensuring their internal consistency in particular.

5.4. MATERIAL BALANCES

While intersectoral balances in value terms provide a certain basis for establishing internally consistent plans and forecasting estimates of major macro-economic indicators, they do not make it possible to link "physical" plan parameters among themselves, that is, to link those production and consumption indicators that plans express in physical terms. This may be done with the help of systems of intersectoral balances expressed in physical terms. Even though intersectoral balances in physical terms do not express linkages between sectoral indicators and overall economic indicators (these problems are solved by balances in value terms) they offer a visible and relatively specific description of production in its physical form. This is an exceptionally important advantage, especially in the case of developing countries. Physical intersectoral and inter-product balances make it possible to solve a wide range of problems bearing on the distribution and utilisation of material resources in different sectors, regions, and enterprises. In particular, this includes problems in planning the distribution of material resources at the level of nations, regions, sectors, or enterprises, and problems relating to the management of stocks.

But it should also be recognised that in the overwhelming majority of newly independent countries it is extremely difficult to construct such balances at the national level because of the limited scope of national economic indicators in physical form and of the absence of established norms describing the utilisation of material and financial resources and the productivity of labour which are needed as a basis for constructing such balances. An additional difficulty concerns the lack of experienced personnel.

In such circumstances it is best to prepare simple material balances in both value and physical terms. The use of material balances in physical terms makes it possible to establish proportions in developing the material element of social production. They reflect objectives regarding the volume and composition of output of individual types of product and their consumption. Material balances in monetary form may also be employed for that purpose. It is then desirable to apply them in comparing available supplies and consumptions of those types of

products that may be conveniently measured in physical rather than in value terms.

The most widely used structure for representing single-product material balances is described below.

Balance

(type of output) _____ for _____ year
units of measurement

Resources

Utilisation

Total including:

1. From production activities
 - a) state sector
 - b) private sector
2. From imports
3. From other sources
4. Remaining from the preceding period

Total

1. Intermediate consumption
 - a) operating requirements
 - b) capital construction activities
2. Final consumption
 - a) exports
 - b) personal consumption
 - c) social consumption
 - d) changes in stocks
3. Other expenditures
4. Stocks remaining at the end of the year

Total income:

Total expenditures:

In the case of developing countries the material balances that may be applied in the preparation of economic plans for ensuring a consistency between supplies and their utilisation may be based either on plan requirements or on forecasting estimates, or else, as in most cases, on a mixture of both. It is the right-hand side of the corresponding questionnaire which refers to the consumption of material resources that produces most of the difficulties. For this normally requires that statistical or else normative coefficients be available to link levels of consumption with some other national economic indicators. For example, this may refer to the consumption of fuel by electric power stations per kilowatt-hour of electricity; the consumption of cement or rolled steel per 100 monetary units of cost of

capital construction activities; or the consumption of food grain per person per year.

Because of the difficulties of establishing the values of such coefficients in developing countries, it is desirable to construct material balances for major types of material resources (for example, cement, rolled steel, fuel, electrical power, grain). Gradually, this initial list of balances should then be enlarged as the needed statistical and normative data become available.

Material balances relating to individual types of output do not offer the same basis for ensuring consistency among synthetic plan indicators as do intersectoral balances. Nevertheless, their use is often more justified than would be the elaboration of more universal but more complex methods. One of their advantages as a particular method for solving the task of making plans internally consistent lies in their ability to link the physical plan indicators of individual sectors with investment projects as concerns the production of and needs for particular types of material resources.

As any other method, however, the method of material balances possesses shortcomings that limit the range of its applicability.

In particular, existing systems of material balances assume that only linear forms of dependence exist between requirements and the supplies that can meet these requirements. In fact, the relation between them is far more complex. Similarly, the material balances assume that continuous increases in inputs occur as the volume of output increases, although in fact this is frequently not the case. Beyond this, material balances do not reflect in a sufficient measure the complex causal relations that characterise the process of social reproduction. Finally, existing methods for constructing material balances in physical terms do not make it possible to link them with a system of financial balances (state budgets, credit plans) and with balances of labour resources, although that problem may be solved by preparing a system of partial planning and forecasting balances.

5.5. A SYSTEM OF PARTIAL BALANCES IN VALUE TERMS AND IN PHYSICAL TERMS

The use of a system of partial balances (in physical and in value terms) in preparing national plans reduces the

need for statistical information. Yet such a system does make it possible to establish a linkage among plan indicators that is sufficiently comprehensive for practical purposes, thus making these plans internally consistent.

Such systems of partial balances must meet three basic requirements. First, they must describe the process of reproduction and its major proportions in its value and physical form. Second, they must encompass those basic elements of productive forces that determine the given economic system's production possibilities. Third, they must reflect economy-wide proportions not only at the macro-economic level but at the sectoral level as well, and make it possible to link these two levels with each other.

These requirements are generally met by the following system of partial balances.

Balances in Value Terms

1. A balance of the production and consumption of the gross product. This reflects the relation between the total supply of goods and services (including imports) and their utilisation for both productive (intermediate and final) and non-productive consumption (cf. 3.1.3; 3.4). Depending on whether information is available, such types of balances may be presented in aggregated form or else may contain sectoral subdivisions. The specifications of such balances correspond to those of highly aggregated intersectoral balances and tables of the "input-output" type.

2. A balance of the generation of national income and its utilisation and accumulation (with due account of net imports).

3. A balance of gross capital investments that describes the availability of financial resources (internal and external) for capital investments and their utilisation for the renewal and expansion of productive and non-productive assets (cf. 3.5) with a specification of government investments.

4. A balance of monetary incomes and expenditures of the population (cf. 3.4.1).

5. A balance of payments (cf. 3.3.6).

The preparation of a system of such balances in value terms (for a specified planned period), which are primarily of a forecasting nature in the case of developing countries,

provides a basis for establishing at least a rough consistency between major value characteristics and indicators of a plan at the macro-economic level and in cases in which sectoral subdivisions are present—at the sectoral level as well.

Balances in Physical Terms

1. Balances of available and utilised labour resources and of the employment of able-bodied members of the population (cf. 3.6).

2. Material balances for major types of industrial and agricultural output (cf. 3.2.1; and 3.2.2).

3. Balances of productive capacities describing the potentialities of production in major sectors of the productive sphere and the degree to which they are utilised.

This second group of balances makes it possible to relate some of the plans' "physicall" parameters to each other.

Yet such systems of balances cannot fully ensure the internal consistency of plans and overcome discrepancies between available resources and requirements, and also between various levels of plan objectives and indicators. That requires that all individual programmes and projects constituting the specific contents of each medium-term development plan also be included. Above all, this refers to programmes of both government and private capital investments.

The total value of all investment projects and programmes (perhaps with the addition of certain other capital investments) and the resulting sectoral and territorial structure must then serve as the basis for the entries on the right-hand side of the balance of capital investments.

Increments in gross output attributable to investment projects in the production sphere, jointly with the balance of production capacities describing possibilities for production in already established enterprises, must serve as a basis for preparing and specifying the resource side of balances of the output of gross product and of national income.

Investment projects must then be taken into consideration in preparing a balance of labour resources and employment as consumers of manpower in the period of their implementation and then in the course of their operation. This includes both the labour power required for

construction activities and the labour power subsequently required for operation.

Investment projects are also reflected in such other balances as the material balance of basic construction materials (cement, rolled ferrous metals) and the balance of payments from the point of view of the investment projects' requirements for foreign exchange for importing machines, equipment and other means of production.

Thus balancing economic plans and making them internally consistent is merely a specification, during the elaboration of the plan (of its programmes, projects, and indicators at all levels), of all proportions and interconnections characterising the future real process of reproduction. As we have repeatedly stressed, therein lies a major methodological principle of planning socio-economic development.

Economico-mathematical models and various balance constructs are useful only to the extent that they are able to describe the real process of reproduction as simply as possible without excessive complexities, but quite accurately from the point of view of its major interdependences.

CONCLUSION

1. This monograph is one of the first attempts by scientists from socialist countries to generalise the planning experience of developing countries with a view to examining the most general theoretical and methodological principles of this major form of government activity in the economic sphere. Many of the problems and difficulties that arise in the planning practice of these countries are aggravated by an insufficient development of the theoretical and methodological principles that govern national economic planning under their specific conditions. This lends the subject considerable relevance at the present time.

The authors have sought to consider all fundamental theoretical and methodological problems that occur in formulating and implementing concrete plans of national economic development. This includes the limitations and possibilities of state planning activities in relation to socioeconomic processes, approaches to the selection of planned and forecasted indicators, the planning and utilisation of instruments of economic policy, the selection of the most effective forms and methods for drawing up plans and development programmes in individual sectors and economic spheres, and methods for arriving at an internal consistency of plans. Under such an approach problems relating to planning methodology, that is, to specific procedures and means for working out plans hold a subordinate position. They are considered only to the extent that this may clarify the theoretical and methodological aspects of planning.

2. Particular attention is given to those most general

problems of state planning that are currently relevant to all developing countries. This is because in spite of the great diversity of natural-geographic, economic, social and political conditions and development factors that is found in individual countries and regions there are also many common features in Asian, African, and Latin American developing countries that distinguish them from similar activities of the state under different socio-economic conditions, including both programme planning in industrial capitalist countries and comprehensive forms of planning in socialist economies. At the same time the specific features of individual developing countries and regions that play an important role in explaining the processes that take place are so diverse that any attempt to reflect them fully would have unavoidably increased the length of the present study and made the exposition more difficult for many readers. Above all the more essential points might have become lost among exceptions and specific cases, just as a forest may not be noticed behind individual trees. Only major specific features and factors of social development in selected countries and groups of countries are therefore considered in the present study, and only in terms of their relevance to the selection of particular forms and methods of planning and of development strategies.

Above all the selection of a rational form of planning and the utilisation of all its potential in the interests of national development calls for a clear understanding of the nature of that human activity in economic management and of its possibilities and specific features in particular situations. This is the purpose of a detailed examination of the process of economic planning at an overall national (macro-economic) level. That process differs in many ways from conceptions of economic planning that have been advanced in non-Marxist literature. An emphasis on the objective character of planning activities and on the dependence of its forms and methods on specific (social, economic and political) conditions that exist in particular countries is the principal feature of the approach that has been selected.

3. Like economic policies in a wider sense, planning activities possess a class character and a social and political orientation that expresses the state's class nature. The scope of state planning activities, their forms, and especially their effectiveness vary considerably from country to coun-

try and are determined by a combination of a number of factors above all political ones.

4. Planning is an integrated set of processes concerned with the development and execution of plans and with control over their implementation. Its scope and forms are determined by the ability of national states to regulate social processes, that is, to guide them in accordance with the general objective principles that govern their development. The goal of planning, like that of all government activities, is to accelerate and intensify progressive and positive trends in economic development and constrain and eliminate negative factors and phenomena, both internal and external.

5. State ownership of means of production provides the objective basis of overall national planning. But this should be understood not merely in a material sense but in a wider socio-economic sense. It includes effective guidance activities in particular spheres and economic sectors by the state. These may be direct, in the sense that they may relate to state property within the economy with the state sector as its material embodiment, or indirect, in the sense that they are based on an effective regulation by the state of individual sectors and economic processes within the economy's private sector. It is the theoretical and methodological foundations of this type of planning that are examined in this monograph.

The state sector serves as the main object of planning as well as its economic basis. As the scope of the state's direct participation in the country's economy widens, greater possibilities for a planned regulation of its development will therefore exist. There will also be a greater need for regulating its development.

6. Under the conditions that characterise Asian, African, and Latin American developing countries only a very few sectors and economic processes outside the state sectors lend themselves to state planning. Most of them only lend themselves to forecasting. Only partial rather than "comprehensive" forms of planning may therefore be envisaged, which cover only individual segments of the country's economy. "Comprehensive" economic planning becomes possible only under conditions of socialism when a social ownership of means of production prevails within the economy itself. This principal conclusion concerning the general

possibilities for planning activities in developing countries and their scope determines many specific features of their planning practice.

7. The relationship between planning activities proper and the forecasting of economic development presents an important theoretical as well as practical problem. Frequently a forecasting of processes that are not regulated by the state (such as climatic factors, the development of the private sector, and prospects on world markets) is a major prerequisite for planning calculations relating to economic processes that are regulated by the state.

Depending on actual conditions the extent to which individual sectors and processes may be regulated will greatly vary, even within the state sector, since it, too, is subject to the sometimes very substantial influences of autonomous external and internal factors lying beyond the control of national states. But as the scope of the state sector within a country's economy increases the influence of such factors will decline and possibilities for influencing the private sector through planning will grow.

8. It is not possible to plan economic processes that do not lend themselves to regulation. They can be merely taken into account in the form of forecasts. As the planning time-horizon increases, moreover, the reliability of associated economic forecasts will decline. Aside from simple forecasts an important role in planning practice is played by so-called normative or goal-oriented forecasts. They occupy an intermediate position between simple forecasts and highly specific planning calculation. Goal-oriented forecasts refer to processes that only partly lend themselves to state regulation and whose development is strongly influenced by autonomous factors.

It is sometimes difficult to clearly distinguish between planning proper and normative forecasting, even though qualitative differences will exist (in relation to a specific planning horizon). Normative forecasting includes forecasts of both goals and corresponding measures (administrative measures and economic policies) that are expected to achieve them.

In developing countries planning activities combine planning with forecasting. They include planning calculations proper, normative (goal-oriented) forecasting, and simple forecasting. The latter's role in formulating plans of socio-

economic development increases as the planning horizon becomes longer. Forecasting is also applied to many aspects of the state's own activities as well as to the development of major sectors within private capitalist formations.

9. A combined planning-forecasting approach is also associated with various other specific features of planning activities in developing countries. Because a comprehensive directives-oriented regulation is not possible adjustments must be entered into plans in the course of their execution, and estimates are needed of the extent to which plans are in fact being carried out.

10. The basic principles that govern planning methodology follow from the objective properties of the process of social reproduction, and in particular from the integral unity of all its stages and forms that it assumes. Because any plan is a model of future reproduction it must reflect the current state and subsequent development of the reproduction process as well as its proportions and interdependences. The central methodological requirement of any plan is that it be internally consistent.

While such factors as possibilities for regulating the economy, the type of planning employed, and the internal logic and procedure for arriving at a plan may all change, the requirement of internal consistency will remain. It is met by the use of economico-mathematical methods and balance constructs as in elaborating plans that are internally non-contradictory. More specifically it may be met both through the use of complex mathematical models and with the help of relatively simple systems of balance constructs, depending on specific conditions and also on available information and computing equipment. The use of complex models, however, is not always justified in terms of their results.

11. The central task of planning is the development and implementation of sectoral, regional, and functional sections within a plan, as well as such programmes as programmes of state capital investments. These carry plans to the stage of concrete projects and decisions intended to solve economic and social problems in accordance with selected strategies of economic development and the economic policies of the state. The methodology of sectoral and regional planning possesses a number of specific features. These follow from the role of sectoral and regional plans within the overall reproduction process.

12. The mixed planning-forecasting activities of developing countries differ substantially from national economic planning in socialist countries. Their actual influence on the development of national economies is largely determined by the role of the state sector within the sphere of material production and in major sectors within the sphere of circulation. Asian, African and Latin American states have placed particular emphasis on the planning of state investments, while the planning of production and of other forms of so-called physical planning are at an early stage of development.

But it would be misleading to underestimate the role of planning in solving these countries' problems of national economic and social development. Twenty three developing countries relied on some form of planning in 1960. This number had grown to 60 by the mid-1960's, while at the present time most developing countries have acquired some experience in planning.

The authors hope that this study will contribute in some measure to the development and improvement of national economic planning activities in developing countries.

At the same time they are aware that this monograph marks merely an initial stage in the work that is needed on the many methodological and practical problems of planning in developing countries. Nearly each section in this work could be elaborated into a separate study. Additional efforts must be applied to these problems in order to widen their scope and bring them closer to the practical requirements of planning bodies in developing countries. Above all wide forms of collaboration are needed between scientists and planning practitioners from various countries, including planning specialists from Asian, African, and Latin American countries. UNITAR can serve as a convenient organisational base for extending the joint efforts that are needed to further develop this important field, which is complex both in its scientific foundations and in its applications. Further steps in its elaboration will undoubtedly contribute to the tasks that fall within the UN's international strategy of the Third Development Decade.

DICTIONARY OF TERMS

- Added value — a computation category; includes newly created value and the amortisation sum of basic capital in accordance with the value of the given product. Is calculated by subtracting from the full value of the product the value of all forms of raw materials, main and auxiliary materials, energy, etc. used in its production.
- Balanced form — constant proportionality and balance of all the main economic proportions on a social scale, achieved through conscious (and not spontaneous) organisation of social labour. The main means of ensuring this is national planning.
- Basic productive assets — the portion of the means of production that serves production over a prolonged period of time, transfers its value to new products in parts, to the extent that it is worn, and does not alter its natural-material form in the process of production. Basic productive assets (material carriers of basic capital) include: production premises and facilities, working machines and equipment, means of

- transportation, piping, draught and productive animals, etc.
- Circulating capital—
goods — the portion of an enterprise's productive assets, that is wholly used up in each production cycle, that alters its natural material form in the process of production and whose value is wholly transferred to the finished product in the course of a single period of production. These assets are made up of 1) production stocks (raw and other materials, fuel, etc.) and 2) unfinished output (semi-manufactured goods put out by the enterprise itself, etc.).
- Comprehensive —
planning a term which implies the inclusion in the national plan of development programmes not only for the economy, but also for the social sphere; for the private as well as the state sector, i.e. to the plan's encompassing all the main aspects of the economic and social life of society.
- Co-operative- —
collective on collective farms—socialist agricultural production enterprises making use of state land assigned to them for an unlimited period free of charge.
- Co-operative —
property collective ownership by co-operatives and their associations, based on their members' voluntary socialisation of all or part of the means of production belonging to them, as well as monetary contributions (shares), and subsequent development of this property on the strength of internal accumulations.
- Dialectical unity — a concept in Marxist-Leninist philosophy according to which objects and phenomena in the world

		around us do not exist in isolation one from the other; they always influence and depend on one another, in a definite way, in other words, are mutually connected.
Distribution	—	one of the aspects of production relations, the connecting link between production and consumption, a necessary phase in the process of reproducing the social product. The term includes distribution of the means of production and the objects of consumption, the produced output and income. The distribution of the national income determines the correlation between accumulation and consumption.
Economic basis, political super-structure	—	the concept was introduced into the social sciences by Karl Marx and Frederick Engels and provides a graphic idea of the internal dependence of social relations. The basis is the totality of production relations corresponding to a definite stage in the development of their material productive forces. The superstructure is the entirety of "legal and political institutions" and forms of social consciousness (science, art, morals, religion, etc.). The basis and the superstructure form an indissoluble whole, and there is real mutual interaction between them, the one, however, in which, given careful analysis, it is always possible to detect the decisive role of the basis.
Economic formation	—	a type of economy at whose basis lies a fixed form of ownership and the corresponding production relations.
Economic regulation	—	the process of the state's conscious influence on the country's economy as a whole and on individual as-

		pects of it (growth rates, proportions, etc.). The central place in this system of regulation goes to planning. Other elements of regulation are prognostication, adjustment, accounting and control, etc.
Final product	—	any output satisfying so-called ultimate demand—private consumption (individual and social) and investments—as well as the requirements of export.
First Division	—	the totality of the branches of the economy engaged in producing the means of production.
Intermediate products	—	products satisfying so-called intermediate demand—the need for raw and other materials, electric energy and other forms of output used in all branches and spheres of production.
International division of labour	—	the naturally, geographically, historically, economically, and socially influenced specialisation of various countries in the production of individual forms of output, which these countries then exchange.
Material conditions—of social existence		the totality of goods and services produced by society; a historical category. Is mainly determined by the level of development of the forces of production and by social and economic conditions.
Means of production	—	the totality of objects of labour and the means of labour participating in the process of production and serving as its material condition. The objects of labour (raw and other materials, etc.) serve as the object of the application of human labour and are subject to processing with the aim of giving them a form suitable for private and productive consumption. The

		means of labour, and first and foremost the implements of production (equipment, working machines, tools, etc.) are the objects with the help of which man acts on nature with the aim of producing material wealth.
Mode of production—		a historically determined means of obtaining material goods needed for productive or personal use; represents the unity of the productive forces and relations of production. Five modes of production are known in the history of human society: primitive communal, slave-owning, feudal, capitalist and communist (the first stage of the latter being socialism).
Multiple formations	—	the presence in the economy of several basic economic formations, for example natural economy, small commodity production, private capitalism, state entrepreneurial activity.
Necessary labour	—	the worker's labour that goes to create a value equal to the value of his working power.
Newly created value	—	value added by human labour during a fixed period of time at a given stage in processing. (The sum of newly created values in all branches, spheres and stages of production is equal to the national income.)
Non-productive sphere	—	branches of the economy not directly connected with the production of material goods and engaged in serving the population's social and personal needs (scientific activity, education, medical services, art and so on).
Objective laws of development	—	general, recurring, relatively stable connections between phenomena

- and processes occurring in nature and human society.
- Output-input ratio — the output of products per unit of value of the basic productive assets. The output-input ratio index is calculated as follows: the value or volume of output turned out in the course of a year is divided by the full average annual value of the productive assets (basic capital).
- Political economy — the science of men's social and production, i.e. economic, relations. It clarifies the laws governing the production and distribution of material wealth in human society at various stages in its development.
- Productive assets — material and monetary means at the disposal of enterprises and serving the process of production and circulation. Productive assets consist of basic assets and circulating assets.
- Productive forces — the totality of means of production and people operating them. The material portion of the productive forces, and first and foremost the implements of labour, forms the material and technical basis of society. Workers possessing production experiences, knowledge and work skills are the main productive force. In the modern era science is becoming an increasingly direct productive force.
- Relations of production — the totality of material economic relations among people in the process of the production and movement of the social product from producer to consumer, including ownership of the means of production,

- exchange of the products of labour and distribution of the produced output and income among individual sectors of the economy and parts of society.
- Productive sphere — the totality of the branches of the economy engaged in the production of material goods and services essential to this production. In this book the productive sphere is taken to include industry, agriculture, forestry, construction, freight transport, communications serving production, technical supplies, sales, trade and public catering procurements.
- Project — in the national plans of developing countries can include a wide range of concepts, from a single concrete production unit (factory, plant, hydroelectric power station) to an extensive programme of economic (project for developing animal husbandry) or social (project for developing elementary education) transformations. The term can also refer to a comprehensive programme for social and economic development (for instance, a project to develop a backward district).
- Proportions — the maintenance by one means or another of the economy's dynamic equilibrium and balance, the ensurance of mutual co-ordination and harmony, in the process of developing the national economy, between the distribution of social labour with due regard for technical progress, on the one hand, and the magnitude and structure of the totality of social needs, on the other. Some of the main economic proportions are general economic

		(correlation between production of the means of production and production of the objects of consumption), interbranch (correlation between industry and agriculture and so on), territorial (the role of individual districts in the one national economic whole), interstate and other proportions.
Reproduction	—	the process of production as seen from the point of view of its uninterrupted movement and renewal. Includes the continuity of the process of creating material goods and renewing the working force and production relations. Simple reproduction, when the process of production is renewed on an unchanging scale, is to be distinguished from expanded reproduction, when it is renewed on an ever-increasing scale.
Redistribution of national income	—	additional distribution by the government of produced and distributed national income in the process of performing its social, economic and political functions (mainly through fiscal policies).
Rate of profit	—	the ratio of profit obtained over a fixed period (usually a year) to the entire advance capital expressed in percentages. The rate of profit determines the effectiveness of the use of capital and the enterprise's profitableness.
Second Division	—	the totality of the branches of the economy engaged in producing goods for personal consumption (individual or social).
Socialisation of the— means of production	—	the transformation of private ownership of the means of production into public ownership.
Surplus labour	—	labour spent on creating surplus

		value (surplus product) appropriated by the owner of the means of production.
Total social product—		the totality of material goods and services created in all branches of material production over a fixed period (usually a year). One of the indices characterising the volume of total social product is gross domestic product.
Use value	—	a thing's capability to satisfy some private or public need; depends on the thing's natural properties and is not connected with the amount of labour that goes into creating it.
Value	—	social labour as embodied in commodities; is created in the process of production, and revealed in exchange, when the produced commodity is equated with other commodities.

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Редактор русского текста *Бункин. В. И.*
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Технический редактор *Токер А. М.*

Сдано в набор 29.03.1979. Подписано в печать 26.09.1979
Формат $84 \times 108^{1/32}$. Бумага типограф № 1
Гарнитура обычных. новая. Печать высокая
Условн. печ. 18,9. Уч.-изд. л. 21,95
Тираж 3360 экз. Заказ № 0176. Цена 1 руб. 60 коп.
Изд. № 27734

Издательство «Прогресс» Государственного Комитета СССР
по делам издательств, полиграфии и книжной торговли.
Москва, 119021, Зубовский бульвар, 17

Ордена Трудового Красного Знамени Московская
типография № 7 «Искра революции» Союзполиграфпрома
Государственного Комитета СССР по делам издательств,
полиграфии и книжной торговли.
Москва 103001, Трехпрудный пер., 9.